The Builder.

VOL. XVII.—No. 858.

Thames Banks.—Quays to come.

RIGHTFUL, indeed, is the condition of the Thames. To be in its neighbourhood without feeling nausea at certain hours is scarcely possible. What is to be done for immediate remedy? What is the Board of Works doing for ultimate prevention? Sir Morton Peto sought last week to obtain leave to bring a bill into the House of Commons "to provide for the prevention of the noisome effluvia from the Thames," but it simply went to require the Metropolitan Board to make monthly returns, to give it increased powers of taxation, and the House of Commons right to interfere if the Board did too much. During the discussion Mr. Tite said, that although the Act allowed the commissioners five years for the completion of the works, he thought that much of the evil would be remedied in three years. One great sewer was about one-fifth completed, namely, the High-level sewer, on the City side: on the Surrey side another sewer was about being constructed: the former would probably be completed by June next. The whole works were going on as satisfactorily as possible; the evil, however, against which they were contending, was one which it appeared to him nothing would satisfactorily encounter. There were 80,000,000 gallons of sewage water poured daily into the Thames, containing 200 tons of solid material, which was not only putrid itself, but rendered putrid any mass into which it was poured. The Metropolitan Board had called in eminent chemical advice respecting the deodorization of the sewage, and Dr. Miller was appointed to make reports upon the state of the river, and to inquire whether other agents might not be employed than those already in use for the deodorization of the sewage. He further thought that legislation would only embarrass and confuse the efforts that the Metropolitan Board of Works were making in this direction.—Mr. D. Griffith was of opinion that while lime was in operation it was effective as a deodorizing agent, but he thought that the great work of purifying the Thames would never be completed until the river was embanked. He would go to the length of saying that he attached much greater importance to the getting rid of the mud-banks than to the improved system of drainage. And after Mr. Alderman Cubitt and others had spoken, the House refused to receive the bill.

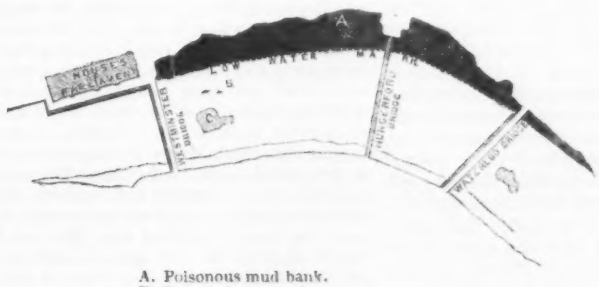
Our knowledge on the subject of deodorizing is still insufficient. It is uncertain, for example, how long the process of lime-flushing the sewers will have the effect of deodorizing the mud-banks of the Thames: on this point eminent doctors differ. We ought to know, too, if the quantity of lime which is needed for the deodorization of thirty or forty great sewers, may not be a means of adding to encroachments on the river which are already very injurious.

Large quantities of lime during the last fortnight have been passed both in a diluted and solid form, to the banks of the Thames, and yet we are strongly disposed to think that the condition of the water is as bad as it ever has been. If so, the lime as it is at present applied, does not act beneficially on the mass of the water of the Thames.

It is curious to note the difference of opinion which still exists amongst those who dwell near the water-side.

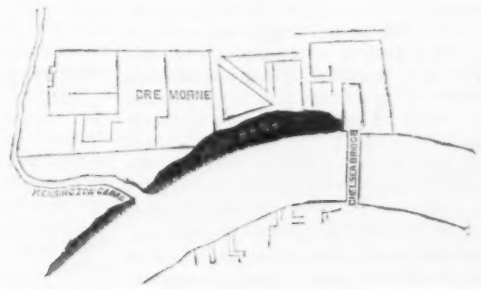
In order to learn how much of the effluvia complained of depends upon the action of the steam-packets and the rays of the sun on the mud-banks, we proceeded early in the morning the other day to the Thames banks near Limehouse: no steamers were moving on the water, the tide was high, and Father Thames seemed still and sleeping. The banks of mud were deeply covered with water, and yet a smell—substantial—most difficult to describe, and very sickening, polluted the air, and proved, that however bad the shores may be at low tide, the water itself is the chief source of annoyance. Last summer we mentioned the effects of the splash of early oars in the stream, and now the evil is even worse. The waterman who ferried us across the river, said, "You see it is as bad as stirring up a cesspool." As the business of the river became active, the smell became worse, and polluted the neighbourhood to a greater distance. Throughout several hours of the day we noticed that at the steam-boat piers, where the water was kept constantly in motion, the smell was more offensive than in other parts. The black and pestiferous waves seem to be getting more and more loaded with solid matter, and threatening that if something effectual be not soon done, the power of steam will not suffice to drag vessels through the slime. It cannot be doubted that the action of the steam-packets makes the evil more offensive to the senses, but by circulating the water, it causes much that is hurtful to be carried away. Near Hungerford Suspension-bridge, before low water, we saw a steam-packet aground, causing much inconvenience to the passengers, and we were told that this was not unusual.

In the course of the inquiry we met with some intelligent men who work at the bottom of the docks, clearing away the offensive matter that collects, and of which they gave rather a striking account. One of the most offensive deposits which they remembered to have met with was a quantity of barley which had been

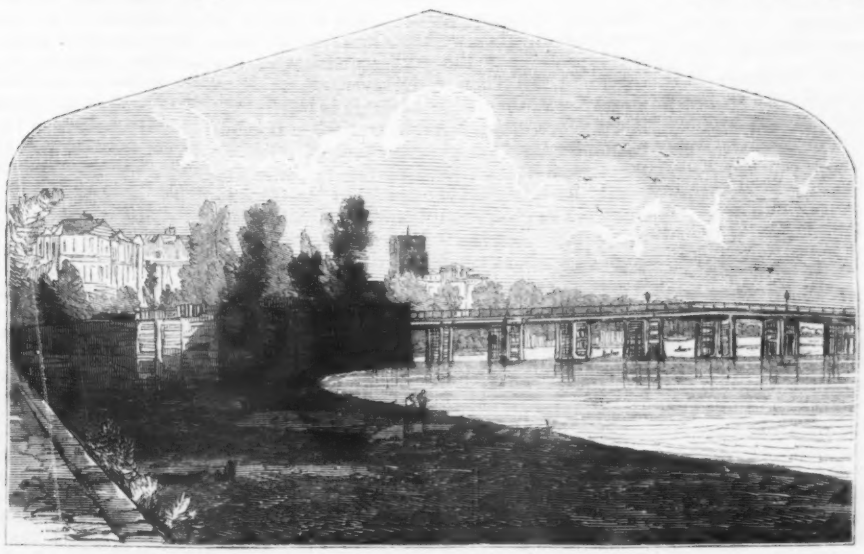


A. Poisonous mud bank.
B. Stranded steamer.
C. Island gradually increasing in size.

The Thames at Hungerford.



The Thames at "Cremorne."



Chelsea Mud-bank.

spilled by some accident, and allowed to remain at the bottom of the water for several weeks. They said that no description could give an idea of the effluvium from this. They consider that a great deal of impure matter, in spite of the regulations, is daily thrown into the docks: the bilge-water pumped from the ships, the corrosion of the copper bottoms, and the arrangement of some of the docks, which only allows of flushing at the intervals of spring tides, increase the evil. Still it is contrary to evidence that to these the present condition of the Thames is to be attributed. It will, however, be necessary to adopt some stringent measures for preserving the waters of the docks from pollution.

The colour of the Thames water is now of a slaty blackness, sickly-looking, and most unpleasant to the eye: this is in a great measure caused by the sewers. We cannot expect, however, even if the drainage be kept out of the river, what with the clay it runs upon and the steam-packet traffic, that the Thames will be as clear as Loch Lomond. The colour of rivers, caused by the materials over which they pass, is noticeable. When the Earl of Derwentwater was executed for his share in the rebellion, the country people believed that the river Derwent flowed with blood. We have seen the Derwent tinged with a deep red in time of floods. In like manner the Thames will ever, even when he is rightly treated, be of a somewhat sombre colour,—clean, however, and wholesome, in comparison with his present viscous state. When the proposed main drainage is completely carried into effect, the Thames will be deprived, on the average, of eighty millions of gallons of water per day. This is an immense quantity, and its absence must have a very important effect in lessening the power of the "back-water" of the river. Already the land-water has decreased in quantity, and it therefore becomes of the greater consequence that measures should be taken for the preservation, for the use of many generations yet to come, of this noble stream. On no river on the face of the civilized earth is there passed during each year such a vast amount of wealth, or are there so many ships from the maritime countries of the globe. The Thames is a national river, and it should not be forgotten that one-tenth of the whole population of Great Britain are lodged upon a comparatively small portion of its banks. On one part is the most renowned of our universities, and on or near to others are four royal palaces. The good condition of the Thames is therefore a matter in which the whole country is interested, and no time should be lost in devising means for preserving it in all its integrity so far as that can be done by well-directed efforts and any reasonable amount of expense.

An examination of the old maps of London will show to what a great extent, in various positions, the water has been indented upon by the land, and in what a great degree the tributaries of the Thames have dwindled; while in some cases their current shortens by the want of power to meet the strong flow of the tide.

As is to be seen in smaller instances, so it will be with the greater river if some thorough plan of embanking be not speedily adopted. Looking at the matter architecturally, while vast improvements have been made in many parts of the metropolis, the ill-defined margin of the Thames remains covered (with a few exceptions) with the most wretched buildings, which have not even rude picturesqueness to recommend them. In parts are those unsightly banks of slime which for years have been poisoned by various kinds of refuse. We have before mentioned some of the causes of those serious obstructions which, by interfering too much with the width of the water in one part, leave a slack to be filled up by offensive matters in others. If we examine the Thames from London-bridge to Chelsea, the difference of the width is remarkable. The widest part is at Hungerford. A glance at this portion of the river, or the accompanying diagram, shows that nature, suggesting to man what should be done, is gradually accumulating a deposit, which in course of time will become solid earth; but while this is going on, projections of various kinds are causing whirls which sweep deposits into other places, and it is evident that if this process be allowed to continue, in the course of time the channel will become eventually lost.

Those who, with a map of this portion of the metropolis in their hand, undertake a voyage at low water from London-bridge to Chelsea, cannot fail to wonder at the neglect which has caused the river to be so much interrupted, and will at once see the need there is for great exertions in order to remedy the evil which has been produced. They will notice that along the site of the Millbank Penitentiary, and near Mr. Cubitt's yard, where a wall has been built—the shore is cleanly swept. If they compare the great mudbank on the north shore from Waterloo-bridge to the Houses of Parliament, with that formed between old Chelsea-bridge and the outlet of the Kensington-canal, of which, also, we give a diagram, they will find that the causes and effect are precisely similar. At the west side of the north end of the old wooden bridge, a wall has been erected at an abrupt angle, which stops the regular flow of the river and causes a great deposit to be thrown back and lodged here. We have sketched its aspect. The same operation may be seen going on, on a smaller scale, in other parts. Look, for instance, near the Lambeth steam-packet pier, close to Lambeth Palace. Here is a much smaller, but still an abrupt, interruption of the river's course, and the consequence is, that a deposit of mud has been formed. And it should be noticed, that these deposits are thrown back by the tide when the inland water has not the opportunity of sweeping them properly away.

Rare business for the mud-larks in the neighbourhood of the Hungerford Suspension-bridge! Even this body are getting scientific, and instead of being content, as they were formerly, to grope along the water-edge, they boldly set to work after the fashion of the gold diggers of Australia, and, from various depths of the black mass, discover matters which have long been hidden. We hope, however, that the mud-larks will find better occupation, and that before long a splendid quay, lined with buildings pleasant to the eye will confine the river in such bounds, that under changes of circumstances, the land stream will be able to maintain such an amount of force, that in future no permanent stoppages will be made.

The cost of the Thames embankment would of course be great, for in order to be effective, it must be thoroughly carried out: partial work would be liable to do more harm than good. It becomes, therefore, an important question how this large outlay is to be met. The cost of the main drainage has been laid upon the inhabitants of the metropolis, and it will be years before that bill is paid. It is to be feared, therefore, that any proposal to increase that burden by the commencement of even such a necessary work as the Thames embankment, would meet with very great opposition. Nor is this to be wondered at, when we know how heavily those taxes press upon the poorer districts of the City. In the Thames, however, as we have already said, the nation at large is interested; it, therefore, seems but fair, that when London has undertaken the gigantic task of relieving the stream from pollution, the embankment should be taken up vigorously by the Government. The good condition of the Thames is a matter on which the welfare of the country at large depends, as much as it does on the breakwaters and other great works which have been undertaken at the general charge; and we believe, that if the intelligent classes throughout the country were polled, there would be little objection made to the application of any reasonable sum of money which might be required to preserve this the most famous of our rivers in a safe and useful state.

Denham speaks of the Thames as,—

> "Though deep, yet clear; though gentle, yet not dull;
> Strong without rage; without o'erflowing full."

He would be forced to write now, "Though deep, *not* clear; though gentle, *very* dull." "Strong" would be applied to its odours, and it is "full" of uncleanliness.

THE NEW HARBOUR: HOLYHEAD.*

MR. RENDEL'S plan having been approved of, with details of the construction to be described, money was voted by Parliament at various dates, beginning with the year 1845. The original estimate precisely, stood thus:—

For the new refuge-harbour	£628,063
For the packet-pier, purchase of land, &c.	180,000
Total	£808,063
On account of which there were voted, from 1845 to 1855, both inclusive	£610,000

In 1854, however, the question of the extension to make up the total length of about 7,000 feet, had been opened, from the representations of the harbour-master, Captain Skinner, as to the number of the vessels using the harbour; and in 1855 the proposal was approved of by the Treasury, and money was voted by Parliament, on account of an estimate of 390,000*l.* making the total cost of the works, as then estimated, 1,198,063*l.* or about 171*l.* 9*s.* per foot length, or 514*l.* 7*s.* per yard. At first the northern breakwater had been proposed to be extended about 2,000 feet: whilst the project as to the western proposed packet-pier was entirely abandoned, and the eastern breakwater was deferred at least for some years. Prior to this decision, works had been progressing at Ynys Gybi, in forming slopes with stone pitching; and work also was commenced in deposition of material for the substructure of the eastern breakwater proper. This last portion of the work, not however very great in amount, may now have to be removed in consequence of the change of plan by Mr. Hawkshaw.

The extension, Mr. Rendel said, of the northern breakwater, would not bring the end of it too near to the Clipera Rocks: these would still be about one mile off. The objection seems to have been anticipated that the extension would entail those defects of principle which had been imputed to the plans of Mr. Walker and Captain Beechey; but such defects were avoided by the *north-easterly* direction taken. Mr. Rendel said, although the sheltered anchorage would be to the west, or windward of the entrance, that, as the deep water extended upwards of one mile south, and expanded one mile and a half east and west, vessels even in southerly gales could enter freely, and select their position for anchoring under shelter of the extension, whilst vessels wanting to go to sea in easterly winds, could do so with ease and safety. He recommended the north-easterly extension, therefore, in preference to what was Captain Skinner's suggestion for an extension in a continuous line, because the latter would increase the difficulty of vessels entering the harbour in westerly and leaving it in easterly winds, whilst, were there not some extension, vessels would be crowding the harbour so much as to unfit it for objects for which it was designed. A suggestion having been made as to the abandonment of the eastern breakwater, to facilitate the entrance in westerly and the departure in easterly winds, the submerged rocks being removed as might be necessary, Mr. Rendel objected that the new harbour would thereby be laid open in easterly winds, which, though "limited to a fetch of two miles" across the bay, and insufficient to affect vessels at anchor, would be injurious to the packets lying at the quays. On account of these and other advantages expected, Mr. Rendel advised only the *postponement* of the eastern breakwater. This was to allow time for judging as to probable effect of the northern extension, upon ease of access to what would then become the inner harbour. The points considered in this discussion, and the result, ought to afford a body of experience of great value in future harbour works; and the points have not been collected in the same succinct form as we are now endeavouring to give them. The cost of extension of the northern breakwater was estimated at 125*l.* per foot for the rough deposits, allowing the contractors to demand an increase on their previous prices, for the distance, and the greater cost of labour and materials. The packet-pier first proposed was abandoned, chiefly because no longer necessary for separation of the packets from the general shipping. At this date, May, 1854, the stone deposits of the first portion of the northern breakwater were deemed sufficiently consolidated to receive the superstructure.

In 1856, an addition of 3,000*l.* was set down in the estimates, for the substitution in the contract, for the packet-pier originally designed, of an improved landing-place for packets (that is at the old harbour), and a railway to join the Chester and Holyhead line at the Holyhead station, making the total amount 1,201,063*l.* for the new harbour or works in connection with it. In February of

* See page 449, *ante*.

the same year the work of the extension had been advanced 1,500 feet, the contract for it having been entered into on the 1st of January, 1855. Mr. Rendel still considered the eastern breakwater would be necessary to convert the western half of the area into a harbour sufficiently quiet for the packet-service, and in some cases for vessels that were "ill found." The removal of the Platters Rocks he thought would occupy several years; and they could not be safely beaconed. He therefore advised the confirmation of the design which included the masking of the Inner Platters and the Outer Platters by heads of the breakwater, as shown on the map in our last number, and also the floating landing-pier. The advantages of a landing-pier he treats as generally admitted; and mentions, incidentally, that the fastenings of large steamers could be more quickly handled than in the case of a fixed pier. Having pointed out other advantages, he gives the estimate for the pier, railway, and railway station.

In 1856 it was decided, on similar evidence to that which had been previously offered, to extend the northern breakwater a further distance of 500 feet in the same direction. The estimated expense was 102,000*l.* which raised the whole estimate for the harbour, and railway works connected with it, to 1,303,063*l.* Some time afterwards, or before the date of the next year's estimate, Mr. Rendel died; and Mr. Hawkshaw, who had been appointed the engineer, and whose views have been already referred to, recommended the abandonment of the eastern breakwater, the construction of the temporary jetty at the old harbour, and the general alteration which is indicated on our map, and which was approved of by the Treasury in February 1858. About this date, it had become necessary to provide for the large class of packets about to be established: therefore, an amount of 20,000*l.* had to be set down for the temporary packet-pier of timber, which we have spoken of, and have shown as in extension of one of the piers of the old harbour. Mr. Hawkshaw estimated his own Eastern Breakwater Packet Piers, the permanent works, at 425,000*l.* Thus the amount 445,000*l.* added to the previous estimate, made the whole amount for the harbour works as estimated up to February 1858, 1,748,063*l.* to which however it was still necessary to add, for certain reasons, 171,937*l.* making the "total aggregate estimate" in March 1858, 1,920,000*l.* of which 863,000*l.* remained to be voted. The amount 171,937*l.* was required to be added, on account of changes which had been made in the quantities and prices, without corresponding modification in the sums total, and on account of the increased size of the head required by the elongation of the northern breakwater into deeper water.

Mr. Rendel's estimate for his eastern breakwater and packet-pier was upwards of 300,000*l.* Before the middle of 1853, 100,000 tons of stone had been deposited at Ynys Gybi, or Salt Island. The work having been damaged by a heavy sea, it was deemed prudent to defer operations till the northern breakwater had been sufficiently advanced to afford protection. At the date of Mr. Hawkshaw's report, or in September, 1857, the deposits for the northern breakwater extended 7,700 feet into the sea from the coast line, and about 1,200 feet of the superstructure had been built up to high water of spring tides; and the quantity of stone deposited was upwards of 6¼ millions of tons. Mr. Rendel's estimate for the eastern breakwater, after abandonment of the packet-pier, was 153,000*l.*

Mr. Rendel's plan for the eastern breakwater had been much objected to. The landing-stage, from the position of the harbour's mouth, might have been difficult of access for long steamers: the arrangement, with the landing-stage at right angles to the train, was defective; the length of the stage would be inadequate; and no such construction was needed by the rise and fall of the tide at Holyhead, only from 17 to 20 feet at spring tides, as contrasted with from 27 to 33 feet at Liverpool, where the stages are of such value. The original plan was determined on *data* which became altered by the circumstances of the extension; and the history of the case may well illustrate the truth of what we have so often had to advance as to the necessity for time for well-considered plans, and deference to authors who have had such opportunity afforded them, and as to the danger which there is in alteration after a matured conception. But in all such cases, the engineer or architect does not put forth so much his own design, as his design modified by, or rendered palatable to, public opinion: besides, his own opinion becomes moulded, without any sensation of the circumstances of influence. In any point of view, we believe that condemnation of the original design of Mr. Rendel would be unfairly attempted. It is clear, however, that the various reasons, and amongst them the increased dimensions of the packets, which required both greater space to lie alongside the pier, and greater area to turn in, necessitated the alteration by Mr. Hawkshaw. Considering that an elongation of the pier of the old harbour would not be in sufficient depth of water for transatlantic steamers, Mr. Hawkshaw therefore recommended the piers shown on our map, on the east side of Ynys Gybi, the outer pier to be 1,200 feet long and 120 feet broad, and the inner pier to be 900 feet in length and 50 feet in breadth. The inner pier is designed against any contingency in rough weather, of packets failing, to make fast as speedily as would be desired, to the inside of the outer pier, as well as for increased quay space. In order that undulations, with a northerly wind, might find their way out, archways, useful for boats, will be left at the south end of the packet harbour. The outer pier would terminate in 33 feet of water, and it could be further extended 300 or 400 feet, without too much contracting the entrance of the refuge-harbour; and it could be extended 500 feet southerly. Mr. Hawkshaw decidedly contradicts the notion that the rocks could not be beaconed; and he instances as evidence, the fact of the great use safely made of the harbour, with these rocks marked by buoys only: whilst the water-way between the rocks and Ynys Gybi, would be too valuable to be lost. The outer pier Mr. Hawkshaw proposes to build with vertical walls on both sides, and the inner pier vertical on the east side only. The space between the latter pier and Ynys Gybi is not of much value. The railway would be carried on to both piers. The piers would be built 7 feet 6 inches above the highest water-mark, and lower landing-places would be constructed 14 feet below the top of the pier at each berth. These arrangements, together with the construction of the new mail steamers with a second and higher deck between the paddle-boxes, would allow the embarkation or disembarkation to be made always at a level, or nearly so. Mr. Hawkshaw's estimate for these works, providing 3,300 feet of deep water berths or quays, and railway accommodation, was 425,000*l.*

Sufficient will now be understood as to the actual nature of the plan, which, as well as the history of the undertaking, having been much misunderstood, could scarcely have been recounted at shorter length. We have to describe the structural part of Mr. Rendel's design for the northern breakwater, and the manner in which the works have been, and are being, carried into effect.

We have shown that one very important feature presented in Mr. Rendel's project was the utilization of that material which, in the Holyhead Mountain, was close at hand. Not only had the breakwaters to be contrived of the sectional form and description of masonry suited to resist the sea, but there had to be discovered the best means of quarrying the material, and the arrangement for conveyance and scaffolding, or the general agency by which the stone was to be set or deposited,—that responsible contractors might have inducement to undertake the work. The result in the breakwater in progress now affords example of a combination of manual labour with great use of machinery such as, probably, had not, before Mr. Rendel's time, been seen in work exposed to the action of the sea. Not only has the adamantine stone, previously, as our readers will have noticed, considered almost useless, been quarried in blocks of enormous size and in immense quantities; but, by the aid of lines of railway on shore and on scaffolding or staging, it has been readily conveyed from the quarries to the very end or any other part of the length of the breakwater, and shot, waggon-load after waggon-load, with great rapidity, into the sea; or as in the work which chiefly is in hand at present, by the aid of powerful "Sampsons," spanning the width of the superstructure, and travelling by steam power from end to end, or by ordinary steam cranes on carriages, the blocks are lifted or set in their places with almost equal facility. Great praise, unquestionably, is due to the contractors, Messrs. J. and C. Rigby, of Westminster, and to their own engineer, Mr. R. L. Cousens, for the ingenuity and skill which they have brought to their part of the task. They have, doubtless, developed increase of profit to themselves; but they have given confirmation to what was the project of Mr. Rendel; and the result will be benefit to the nation in works of similar character.

Mr. Rendel, electing in favour of the material at Holyhead as capable of being used for the bulk of the work,—that is in any masses, and in the rough,—designed the form of his breakwater in section, somewhat as a combination of the sloping and the vertical wall systems. The substructure, however, was not to be pitched or paved on the face next the sea, as in the old pier spoken of by Sir John Rennie, but was to be in the manner of "pierre perdue." The stone was to be cast into the sea in whatever quantities might be necessary to form a permanent substructure—one which after having been drawn out at the base by action of the sea in the early period of the depositing, would ultimately reach the limit of motion, assuming permanent slopes, or after the proper quantity of material had been thrown down, along the line of the intended construction. The material deposited, ultimately nearly 7,000,000 of tons, extending to a length of 7,260 feet, averages more than 400 feet of breadth at the base. It has been kept heaped up to the underside of the staging carrying the rails—being added to as required, in order that the base might be firmly consolidated, and partly that material at the top might serve for temporary protection in setting the work of the superstructure which has to be described. The depth from the surface of the rails to the zero line, or that of the lowest low-water of spring tides, is about 36 feet; and from that line to the bottom of the sea in the deepest part, at the head of the breakwater, is about 55 feet.

For the formation of the superstructure the engineer proposed, along the line of deposited and consolidated rocks, to excavate, if we may use such a word, a trench down to the level of the zero line, and to build therein a nearly vertical wall, of irregular masses, of the Holyhead stone, to be set edgewise, and grouted in hydraulic mortar, and, where necessary, filled in with concrete, "pitching" the slope and top of the substructure, above low-water line, on the inner or harbour side, and finishing the superstructure as a coped and parapetted terrace, paved in slabs; the work of the latter to be regular set-and-dowelled masonry of the Anglesea limestone, or marble, from Redwharf Bay. The slope on the harbour side, not having been exposed, remains nearly as the materials were first deposited, and will only require making even, to receive the pitching; so that vessels can lie within gangway distance, whilst seamen or others on the breakwater shelter under the wall of the superstructure, in which recesses are formed at certain distances. Thus, in looking at a cross section of the breakwater, there is a broad walk, just clear of the high-water line, or at the top of the material of the foundations and of the inner slope, 20 feet in width, and 27 feet 6 inches above the low-water line, protected by the vertical wall. The latter is 16 feet in thickness, and 11 feet 6 inches in height, exclusive of the parapet, in the portion of the superstructure spoken of; but the foundations built in the trench, starting from low-water line, are there 22 feet 6 inches in thickness, the difference being made up by a batter on what will eventually become the sea-face.

Along the top of the vertical wall, the terrace-walk is about 14 feet in breadth: it is paved with dressed slabs of the marble, and is protected by the parapet, which is 4 feet thick and 3 feet 9 inches in height, set within a coping, or ovolo-formed nosing, of 2-feet projection, and a height of about 2 feet 6 inches, exclusive of a fillet which is beneath it. The dowels in the masonry of the parapet are of slate, and they measure 9 inches in length by about 3 by 4 inches in thickness. The stones of the irregular masonry, great masses nicely fitted with smaller stones, jut out on the sea-face in almost every variety of form; but on the harbour side, by selecting the stones, and slightly working off projections with the hammer, a more even face is kept. The result on either side of the wall, is an effect which is at present very picturesque, and has much beauty of colour. The portion of originally deposited rock-work, from zero line, in face of the vertical wall at short distance, remains to nearly the same height as the terrace, just as left at the work of trenching out; and it will so remain for some period to come. In the course of years, the sea in this case acting upon a portion of the deposit that has been divested of core and backing, will effect the removal, and the material will go to the consolidation of the general substructure. The action of the sea in moderate storms is spent on the slope of the substructure, without injury, before the waves reach the summit, or what will become the base of the exposed and vertical part of the wall. This seems to be shown by what occurs in two several portions of the breakwater, namely, the work generally, and one portion at the commencement, at Soldiers' Point. In the latter case, for a certain

distance, or filling in the space between the first starting point and certain outlying rocks, the vertical wall system was adopted to a greater extent; and there the waves dash against the wall with violence, at the time that no such effect is observable in the work out to sea.

In the design of the substructure of breakwaters on the principle which has been here adopted, it is supposed that below a certain level, say 4 or 5 feet under low-water, the sea does not immediately act upon materials deposited. Above this point the materials would be gradually extended till they reached a very flat slope: below such point ultimately the line assumed would be a steep slope. It has indeed been asserted that at Dover lately, movements have been detected at 15 feet below low water, which might render necessary methods of construction different to those which have in many cases been adopted. Observation of the breakwater at Holyhead, on the other hand, has shown that in some places no movement has occurred for four years: the sea is packing up material or sand, rather than dragging out; so that a conclusion would follow in favour of slope properly constructed, in contradistinction to the vertical wall, in any case where materials are at hand and vessels are not required to lie close alongside. In the head of the breakwater, at Holyhead, the vertical wall will be carried to a depth of 30 feet below low-water line, because it is necessary, obviously, there, that vessels should be able to round the end without danger of striking. In excavating the trench, the stones are lifted out by the cranes, chains being simply passed round the stones; and the stones are cast on the harbour side of the substructure, or where they may be wanted. The lower or foundation stones of the wall are laid flat, generally in a foot or thereabouts of water, at the low-water level, and the other stones are then selected and built together edgewise. Great dexterity is remarked in the workmen,—their habits in the ordinary rubble-work of the district having prepared them for management of larger masses. The mortar is compounded with Aberthaw lime, burnt at the works, and pozzolana. The concrete is composed of one part of the mortar, and two parts washed gravel.

Taking the original breadth of the staging, at Holyhead, at its dimension, 150 feet; on the harbour side of a central line, the materials as we have said, remain as they were deposited, or up to high water of neap-tides. On the sea-side where the materials were heaped up to the underside of the roadways, the mass has been drawn out to a distance of 150 feet from the line of road, and in some cases to 200 feet. The sea has exerted its force to an extent approaching to a distance of 150 feet, forming a slope of about 7 or 8 to 1, so far as regards that side of the breakwater and portion of the slope on which the sea could have action; whilst below that, the slope remains at about "one to one."

The head of the breakwater will cover a very large area of space. We have just alluded to the head, as having one point of difference from the ordinary part of the breakwater, as regards the depth of the foundations of the vertically built masonry. Whereas in the breakwater generally, the cemented masonry is built from low-water line; in the head, the foundation will be commenced, on the deposited material, 30 feet below that line. This portion of the work, therefore, must be executed with the diving-bell, or diving-dress. The construction can hardly be described as decided upon, except as to what is at present nearly completed, namely, the deposit: but there may be a casing of 18 feet to 24 feet in thickness, made up of regular masonry of the Anglesea limestone, for 3 feet or 4 feet facing of that thickness, and of blocks, size 8 feet, by 4 feet by 3 feet, of *béton*, inside, bonded with similar blocks of Runcorn stone, which are now ready for the purpose; whilst the filling-in, or hearting of the whole, will be of the ordinary, irregular material. A lighthouse may be added.

Although there was a vote of money in 1845, and works at Holyhead, accordingly, were in hand in 1846, these had little connection with the new harbour. They comprised the deepening of the old harbour, or a portion of it, to twelve feet below low water, so as to make it available for the large packets, as well as the construction of a jetty. The surveys for the new harbour, however, were about this time in progress; but considerable opposition was made to the scheme, chiefly on the part of Liverpool, and a commission was appointed to investigate the subject.

The works necessary to the construction of the new harbour were commenced in 1847 by the formation of the railway which was to connect the workshops and offices near the end of the northern breakwater, with the quarries and with the island called Ynys Gybi, whence Mr. Rendel's eastern breakwaters were to commence. This line is carried in one part of its course, intersecting the mouth of the narrow inlet or strait, on timber staging. The work of depositing was commenced in May, 1849, by filling up the gap at Soldier's Point between the shore and rocks, or where the vertical wall has been adequate to receive the shock of the sea. In this part the breakwater extends over a considerable breadth, forming an ample area for stacking merchandize, or whatever other purpose it may be required for.

The scaffolding or staging used in the formation of the breakwater was regularly carried in advance of the work of depositing material; and it was planned and constructed in the manner now to be described. It was designed to serve for five parallel lines of railway, 7-feet gauge, along which the trains of waggons drawn by locomotive engines might run from the quarries, as we have stated, to any part of the breakwater, depositing materials, or moving the cranes, exactly where required. The rails also suffice for the "Sampsons" used chiefly in the work of the superstructure. These machines named, differ from ordinary "travellers" inasmuch as the upper part of the machine (where the movement transverse to the line of building operations, works) is carried on legs, to the feet of which are attached the wheels by which the machine follows the line of operations. The whole machine, on the rails, formerly was moved by manual power, — the raising and setting of stones, with the transverse movement, being effected by a small steam-engine at the top. Messrs. Rigby have now applied the power of the one engine to the wheels below, and have thus dispensed with the manual labour which was needed for the movement longitudinally. By these facilities, the "Sampson," and the steam-engine upon it, can be moved quickly out of the way of harm when a storm arises. A still further improvement in these machines has been recently made to adapt them to the curves of the lines of railway, where the breakwater expands into the head. The legs of the "Sampson" are here attached to pivots, or turn-tables, which are carried by waggons; so that, with the same span for the machine itself, the curves can be rounded, or, with the further aid of the turn-tables belonging to the rails, the whole contrivance could be brought on to a single ordinary line of railway, and both waggons even could be moved with the "Sampson" along the same line, instead of along the two outer rails of the number of lines. The "Sampsons," we should say are used, chiefly, running on rails at a lower level than that of the lines on which the depositing waggons have been running,—the upper levels having answered their particular purpose, have now in great part been cleared away.

In constructing the staging in advance of the breakwater, the balks for uprights, having been shod as piles, and weighted with stone in a boxing, at one end, were towed out, and tilted and guided till they stood in their intended position, sinking by the weight for a short distance into the ground. Their real adequate stay was to be the material of the breakwater, itself deposited round them. On these uprights, 30 feet apart in the length, and five of them in the width of the staging, were placed templates 13 feet in length, and on these, transverse and longitudinal balks to carry the roadways. Of course, with all the support obtained by rapid deposition of stone, the loss has been great; indeed, it is admitted that for every piece of timber, it may be considered that a fellow piece has been required, before the object was attained. There is no cross-bracing of any kind in the staging; but for some of the uprights, two pieces are substituted, spreading at the base, so to act in some degree as struts. Besides destruction of the staging, waggons have fallen into the sea, and had to be recovered. The timber is of little value as cast ashore; and the loss in a single storm has been many thousands of pounds, money.

The materials have been carried along the lines of railway in waggons contrived with a species of false bottom, so that the contents could instantly dislodge themselves and fall through the staging as each waggon passed any point where the material was required, and where a simple mechanical contrivance for tilting by a lever the bottom of the waggon, had been fixed to the sleeper of the rails. The effect of this arrangement of the waggons, which is due to the resident engineer, Mr. G. C. Dobson (who has acted since the commencement of the undertaking), has been that the work has proceeded at a rate which would have been impossible with any method of "end-tips." At one period, 4,000 tons of material every day, were being deposited; and in one week in 1853, there were 23,846 tons cast into the sea.

It is considered that as much progress has been made in five years, as would have required thirty years under former methods of construction,—say such a method as that in the Plymouth breakwater, where the materials were carried out in vessels. Five thousand tons of material at Holyhead, indeed, have been deposited in one day; and there has been an average of about a million tons of deposit a year, and 1,000 lineal feet of substructure formed. The substructure, as we have said, is now complete, and the superstructure is advanced beyond the point marked *d* in the map we published, and is paved and parapeted for a considerable portion of that distance. The pitching or paving on the harbour slope has to be done. The principal labour would seem almost, to have been the loading the waggons at the quarries. Four powerful cranes are often required for a single stone; and the materials have to be placed carefully on the waggons, that trains may pass one another. There have been about 260 waggons employed, six or eight of the ordinary locomotive engines, and scores of cranes. We may say there have been generally one thousand five hundred men engaged on the works. Seven hundred of these have been in the quarries alone. Attention evidently is given to the comfort of the workmen. From the length of the breakwater, and the distance to any places for lodgings, it has been necessary to provide places on the breakwater itself, moveable as the work extends. Gas, at one time, was thought of, for the lighting at night, much of the work of the superstructure being tide-work; but fires were preferred, for the sake of the heat. The men receive from 2s. 8d. to 3s. a day. The miners in the quarries are paid the latter-named amount. The contract with Messrs. Rigby, as to price, was for an amount per ton of material deposited. The waggons are regularly weighed, at one part of the line from the quarries.

The contractors' workshops and plant include, besides convenient offices and storehouses, an extensive collection of buildings for various branches of a builder's or mechanical engineer's establishment. There are a smith's shop, a pattern-shop, and a foundry; a locomotive shed, and a waggon shed; a fitting-shop, and an engine and boiler house; lime-kilns, and sheds, and mortar-mills; powder-magazines, galvanic-battery apparatus stores, and many other offices and buildings.

Mr. C. Rigby has a house near the point where the breakwater commences. Here he has made himself very comfortable, having a steam yacht in dock, salt-water baths constructed in and out of doors, and tastefully arranged grounds. The manner in which the battlemented masonry of the turrets and walling is put together, of quartz or other picked materials from the Mountain, is worthy of an architect's note; albeit, there may be *mimicry*, such as is objectionable, of castellated character.

We have scarcely touched upon the quarrying, upon the success of which that of every other part of the undertaking may be said to have depended. The quarrying has had its own features of importance and interest; and so much experience or knowledge has resulted from that part of the work, that may be useful in future, that we shall probably notice the subject in a separate article.*

ARCHITECTURAL MUSEUM CONVERSAZIONE.

THE annual *soirée* of the members of the Architectural Museum took place on Thursday night, July 7th, at the South Kensington Museum. There was an overflowing attendance of a very brilliant character.

In the absence of the noble President, Mr. Beresford Hope, the chairman of the Council, was called on to preside.

The Chairman, in opening the proceedings, expressed his regret that they were not honoured on that as on previous occasions by the presence of the Earl de Grey, who, through his example and precept, as well as by his exertions, had done so much to further the good cause of architecture. But, while regretting on their own account the absence of the noble lord, the assembly would, he was sure, participate in the feeling of gratification evoked by the announcement that it was through a wedding in the family of the noble earl that he had been detained from coming amongst them.

* Owing to delays in postal communication, some printers' errors in our last article remained uncorrected. Vessels do not "sound" the entrance to the harbour: the Race merely obliges them to make a circuit.

The Prince Consort was likewise unable to be present, but the sympathies of his Royal Highness were with their object; and, owing to various causes, letters of apology had likewise been received from other distinguished personages, among whom were, the Bishop of Oxford, Marquis of Salisbury, Duke of Buccleugh, Bishop of London, Mr. Cole, and others. The late Sir B. Hall, now Lord Llanover, had attended that meeting, but in consequence of an accident—not, he trusted, of a serious character—his lordship was compelled to return home. But, in spite of the inability of those of whom he had spoken, there were yet enough present to constitute a great and a goodly gathering. If they asked for a monument to the Architectural Museum, they might look around them. In addition to those who had been fortunate enough to find seats within that lecture-hall, there were many hundreds of their enthusiastic friends who were walking about in different parts of the Museum. It was but a few years ago, let them bear in mind, since they had assembled in their odd home in Cannon-row, Westminster: now, without bating for one instant their pretensions—without claiming less at the same time that they claimed no more, they had become a part and parcel of that national and ornamental Museum in which they were now assembled. Still, though forming but a parcel of it, they had not allowed themselves to be absorbed into it; they had their own officers, and their own rules and regulations, and the compact had been a fair and even one between the high contracting parties. Those parties were, on the one hand, her Majesty's Department of Science and Art, and on the other, the free and self-supporting Architectural Museum, and in that free compact they had kept, and meant to keep, their own. And having done this, he believed they had thereby established matters on a far more satisfactory basis than they had occupied some time previously: they might have imperilled a few interests here and there, but by their course of procedure they had acquired respect, and they had placed themselves in a position which showed that independence and friendliness were synonymous terms. With what object had they come to Kensington? To establish a true, good, living School of Art, as they had done in Cannon-row. There were other departments of art in London to be taken into consideration, such, for instance, as the Royal Academy. He should be sorry to make an attack on that academy or on any other school of art established for the promotion of art, but these schools did not cover everything. There was that true and living art of which the revelation had been made only to their own generation, and he might say only in their own lifetime. An idea had grown up that architecture was not a matter merely of the rule and compass, but that it was an art, and that every moulding, every leafage, every slight accession to a building was as much the architect's business as the general design. For its school of art, workmen must be trained, and while that was doing, the school of decoration must not be weakened. A great deal had been said about the importance and dignity of the art workman, and he agreed with all that had been urged in this respect; but they must take care that they did not obscure other highly important truths,—that they did not run into the extreme of making the art workman everything, and the artist nothing. They must not fall down into the somewhat minute and pedantic worship of detail, of party, and of smaller beauties: this was what that Museum would never do. The Museum wished to set up the study of art in detail, but not as a detailed study: it took detail as a branch, and an inferior branch in the crowning science of the art of architecture. They claimed to be wide, to be free: they claimed to be independent, because they were not socialistic merely, or elaborators of detail, or simply a school of architects, of outline or proportion, wishing to keep down merit in the art workman: they wished to encourage all the arts having similar elements: they wished to encourage the combination of all the elements of art for the accomplishment of the grand whole of architecture. They were a combination of all the broadest and minutest branches of the art of architecture. In support of this view, he need only appeal to the gathering now before him, which had come to that somewhat distant, secluded,—he would not say somewhat inconvenient—portion of the metropolis. They had come then, he felt confident, not merely to see the Museum of the Department of Science and Art, but more especially to take part in their own architectural gathering. And when their *conversazione* had come to an end, and when they again wandered through those long aisles, they would not forget to visit their own collection upstairs; and he hoped they would not be induced to regard those dingy casts which they would find included in it, as trifles, for they were connected with the finest cathedrals of the earliest times—with cathedrals and palaces, with everything which bore the stamp of Teutonic civilized beauty. With these keys before them, they would be enabled to hand down to their children and grandchildren the means for the construction of buildings of a similar character. Sooth to say, though beauty was "a joy for ever," and though the eyes of beauty were on every side that evening in great abundance, yet in the more intellectual resources which were required they did not abound. Herein there was one thing needed, namely, those material treasures which, though, perhaps, not very valuable at their lectures or at their meetings, were yet of importance to the treasury; for there were such things as bills, as salaries; and, as it was agreed on all hands that prizes were to be given to art-workmen, the question was, how were these prizes to be procured? Last year the noble president, who then occupied the chair, made a stirring appeal on behalf of the funds of the Museum, and that appeal had been responded to with great spirit and generosity. The result had been to place the institution on a more satisfactory basis than it had before occupied, but it had not yet put them at the top of the tree, or in the place which they wished to occupy. They were now in the process of solution, but they had not yet become quite solvent. He hoped that next year their solvency would be an established fact, and that they would be able to carry on the Museum with that spirit and independence which ought to characterize its proceedings. He called on all who were not yet subscribers to become so, or at least to contribute donations, and to do something for the advancement of the interests of architecture, by agitating in its favour among their friends and those with whom they came in contact. Once possessed of sufficient funds, they would be enabled to hold real *conversaziones*, at which those who attended, and especially art-workmen, would be enabled to state their difficulties, their troubles, their hopes, their fears, and their views of what the institution was doing for them. Such meetings they had been accustomed to hold in Cannon-row. That had been rather a rude place certainly, and was Mediæval in its look; but though their assemblies were of a more dignified character since they had come to their present abode, they would take care that they did not die of dignity, and their present place of meeting would hold ten for every one that had been enabled to assemble in their former contracted domicile at Westminster. He believed it had been the intention of Mr. Scott to draw up, as usual, an able report of their present position and labours of the past year; but the affairs of state in which that gentleman was occupied had prevented him from doing so, and the meeting must, therefore, content themselves with the rough draft which had been prepared. The chairman then submitted the heads of a report which referred to the lectures delivered during the past year, which were seven in number, all of which, with one exception (his own, of course), were excellent. Mr. Clark, it was to be regretted, had been prevented by illness from delivering the lecture which had been promised in his name, but he had no doubt that the pleasure of hearing the lecture in question, addressed to art-workmen, would be enjoyed during the next session. Mr. Godwin, one of the members of the council, undertook, in the unavoidable absence of the chairman, to present the prizes to the art-workmen. The chairman read the list of the prizes awarded last year (which have been already published in the *Builder*); and proceeded to state that the names of several eminent persons who would deliver lectures in the course of the approaching session, were announced. The Museum continued to have friendly relations with the Government, and the officers of the Department of Science and Art had shown the greatest kindness in doing all in their power for the comfort and convenience of visitors to the Museum. Special reference was made to the exertions of Mr. Owen; and the report concluded with an appeal for pecuniary support in aid of its funds. The chairman on resuming his seat was very warmly applauded.

Sir C. Barry in moving the adoption, in lieu of a report, of the able statement made by the worthy chairman, expressed his opinion, in which he believed he would be joined by the entire meeting, that their thanks were due to Mr. Hope, not merely for the lucid and cheering exposition which he had just given of their position and prospects, but for the exertions which he had constantly and perseveringly made to further, through the instrumentality of that Museum, the great and sacred cause of art.

The Rev. G. Williams, of King's College, Cambridge, seconded the motion. In the absence of one of those admirable reports which they were accustomed to receive from Mr. Scott, he did not know that they could have anything better than the excellent and very clear statement with which they had been furnished by the chairman respecting the progress of the Museum. As regarded the change which had taken place from Westminster to their present abode, nothing could be thought be more hearty, more agreeable, and more calculated in every way for the promotion of the object in view than the meetings which they used to hold; but at the same time he believed there were counterbalancing advantages attaching to their present position, and that the very great encouragement which was extended to them by the Government was a proof of the very material progress which had been made. There had been always a deficit for some years past, and it was satisfactory to know that at length this was in process of being cleared away. He had no doubt that the chairman by his speech had enlisted, as he never failed to enlist, the sympathies and support of a large portion of his audience, and that the result, as exemplified by the subscription list for the coming year, would be everything that could be desired. He thought there was one thing which it would be well to bear in mind in the event of their funds improving to any marked extent. In offering premiums to the workmen for designs and models, it did seem to him desirable that those premiums should, if possible, be sufficient in amount to induce the working classes to contribute. Because it must be recollected that time to them was money, and that they could not afford to waste their time in the preparation of designs, unless considerable encouragement was afforded to them, and unless they were led to believe that not only the first and best designs would gain a prize, but that some reward would also be given to the second and third in the order of merit.

The motion was put from the chair, and passed by acclamation.

Mr. G. G. Scott proposed a motion of thanks to the officers of the Department of Science and Art, for their great kindness on all occasions, and for the support which they had given in former years, and continued down to the present time, to the objects of the Architectural Museum. To some of these gentlemen they were indebted in an especial degree. During the past year Mr. Cole had been for some months in Italy, and had brought back a number of extremely interesting specimens from Rome and Verona; and though he had not yet had an opportunity of thoroughly examining them, he was told that they afforded most valuable illustrations of Antique, Renaissance, and Mediæval art, including several very interesting fragments of mosaic, of both descriptions. The heads of the Department generally had followed up this kind aid by increasing the list of photographs, which were now arranged in the museum in a much more clear and effective manner than they had ever previously been; and they had manifested their good will in a variety of ways, which it would be difficult to enumerate. It might seem invidious, where every officer had acted with such great kindness, to make individual references; but he could not refrain from thanking, in an especial manner, Mr. Owen, Capt. Fowke, Mr. Robinson and Mr. Smith. For several years past he had been in the habit of putting before meetings such as the present a statement of the objects of the society, but he hoped that these were now sufficiently well known to render their repetition unnecessary. They were all, he was sure, aware that their great object had been to collect together, in an accessible form, an example of the arts subsidiary to the architecture of all ages and periods, but more especially of that particular period which, up to the time of the formation of their museum, had been neglected in all great public collections: he referred to the Mediæval department, and to the antiquities of our country, not as they now existed, but as testifying to the architecture of that period, and to the buildings of France and other nations which were coeval with them, and which were almost as little known. With such small means as they possessed, they had endeavoured to do away with that blot in the general system of museums; and, though their collection might be considered incomplete, and as affording but a very general representation of the art as it existed in the Middle Ages, in England, France, Germany, Italy, and elsewhere, it yet consisted of some thousands of specimens, and had

led to the introduction of this department into other museums. What they had done, however, was as nothing compared with what there yet remained to do. The necessity for exertion was each year becoming greater; for, year after year, the traces which they were so anxious to study and preserve were mouldering away and becoming fainter and fainter. There were objects which he himself had sketched twenty or thirty years ago, in which he was then able to trace every fibre and line of foliage; and on visiting them recently, after that interval had elapsed, he found that the marks formerly so clear had become indistinct and obliterated to a degree that he could scarcely have believed credible. Some of the relics of antiquity were of course more durable than others, but if this silent action were allowed to proceed without any step being taken to acquire the knowledge while opportunity yet existed, the result hereafter must be bitter and unavailing regret. Permission was freely given in foreign countries as well as abroad for the pursuit of studies of an antiquarian character: it was money alone that was wanting, and for such a purpose he was not ashamed to beg. Moreover, funds contributed for such an object were given for an end that was strictly national. It was to preserve to the people of England a knowledge of what they once were, to illustrate their own art, to make them acquainted with their own buildings, and to enable them to compare the knowledge and the efforts of their ancestors with the remains extant of the labours of continental nations.

Mr. G. Godwin being called on, said he felt very great pleasure in seconding the motion. Together with Mr. Scott, and other members of the committee, he had had good opportunities of seeing the great assistance given to them, and the great interest at all times manifested by the members of the Department. And not merely did this interest date from the period at which they had been brought under the roof of the South Kensington Museum, but even while they were in those quarters so often spoken of, and it now seemed with regret even by some—the cock-lofts in Westminster—even then, the members of the Department had aided them in obtaining a grant from Government. From that time to this they had always done their utmost to forward the views of the committee of the Architectural Museum. Mr. Cole, Capt. Fowke, Mr. Cunliffe Owen, in fact all the officers were deserving of the warmest thanks of the subscribers to that Institution. But he did not rest quite satisfied with what had been done: he looked forward to further steps. He hoped that by and by measures would be taken to bring about a union of the Greek, Roman, and Renaissance remains and casts already under that roof, with their own fine collection, mostly Mediæval, and that by this means we might obtain really a National Gallery of Architecture. This gallery, he thought, should be maintained most sedulously and liberally by Government, but should be carried forward and governed by the present committee as trustees, or by those who might hereafter be appointed. It would still have the best interest and exertions of the members of the architectural profession, and of all art-lovers; but, in the hands of the Government, it would attain to a position and an importance which, depending merely on private support, however earnest, it could scarcely hope to achieve. Instead of taking up the time of the assembly with generalities, it would perhaps be interesting for him to say a few words on a kindred topic connected with the building in which these proceedings were now taking place. It was not perhaps generally known that the 41 acres of land closely adjoining the South Kensington Museum, which belonged to the commissioners of the Exhibition of 1851, were immediately to be laid out in ornamental gardens, surrounded by arcades and colonnades, and decorated with water and statuary. About 20 acres in the centre were to be leased to the Horticultural Society, who would spend 50,000*l.* on their portion; and the commissioners of 1851 were to expend another 50,000*l.* on some 4,000 feet of Italian colonnades, and various other artistic decorations surrounding this area. A space was to be left for public buildings, hereafter to be erected by the commissioners, who were bestirring themselves in reference to the work. The design was from the hand of Mr. Smirke, and operations were to be commenced in about a fortnight; so that in a very short time they might anticipate that a national delight would grow up in that place, which would not merely be an inestimable advantage to the neighbourhood, but would afford an attraction to which all lovers of artistic beauty, and all seekers for healthful and elevating recreation, would gladly and thankfully resort. Mr. Godwin concluded by seconding the vote of thanks to the officers of the Department, who, in the midst of all their occupations, had never neglected the Architectural Museum.

Mr. Robert Smith, in the unavoidable absence of the head of the Department, returned his acknowledgments for the complimentary vote which had just been passed. In common with the officers of the Institution generally, he was fully alive to the value of such a collection as that of the Architectural Museum; and he had felt much pride when within the last week he had an opportunity of adding to the collection some photographs of the ruins of ancient Rome. In the same way he had experienced pleasure in assisting to carry out the views stated by Mr. Scott and Mr. Godwin. He believed that the development and reorganization of the Architectural Museum had afforded an opportunity such as had never occurred in this country before, of starting on a firm basis a great institution to illustrate not only the architecture of any nation or period, but that great art which was the parent of all decoration—the art of architecture in all ages. In such a design they were wonderfully assisted by the appliances of modern science; the art of photography alone having placed in the hands of architects at the present day a key which had opened to them resources never before within their reach. As regarded the illustration of every kind of architecture, especially, photography was of incalculable advantage, for it enabled men to acquaint themselves with details even of the most striking minuteness without passing away from the legitimate occupations which bound them to their studio.

The Rev. W. Scott moved a vote of thanks to the chairman for his conduct on that occasion, as well as for the labour and interest which he had invariably bestowed on the concerns of the Architectural Museum. Those who were only acquainted with that gentleman in his public capacity, might have frequently had occasion to admire his eloquence, and the generous manner in which he accommodated himself to circumstances; but those who knew him better were fully aware of how sincere, earnest, and zealous a workman he was in anything which he undertook. It was comparatively easy in these days, when art was fashionable, to be a friend to art, and when one had the means, to be a sumptuous and liberal patron of art; but it was by no means so easy to be an earnest student and an assiduous worker in the cause of art. The hon. gentleman had erected a monument of Christian art in this country conspicuous alike by its sumptuousness and propriety, and which, if not one of the greatest, was certainly a high ornament to the metropolis. Not only in this manner, however, but in the more quiet and patient and drudging way in which that Museum had been worked, the chairman had shown himself a zealous and untiring friend to art; and of the progress that, under his guidance, it had made, the assembly of that evening afforded the best practical exposition. They had heard from his friend near him an animated description of the gorgeous retreat that was about to arise in that place—colonnades and porticos, and fountains; while vistas and everything which could delight the eye would be scattered around; but none of these, however beautiful they might be in their completeness, accomplished half as much for art as the shabby, dingy scraps of architecture which come from ancient structures. Therefore he wished to impress on all present, that if they desired to be something more than art lovers, and to render services to art, they ought, according to their several spheres, to labour for the increase of the collection which had done so much, and which would continue to do so much for this glorious art. They should not fail to remember that the time was rapidly passing away when the formation of collections such as this would be any longer possible. For did they suppose that if in past years there had been such collections as were now made, and that objects which time had since destroyed had then been got together; above all, if that art of photography to which reference had been made were then in existence, did they suppose that there would have been that decadence of art; or that difficult and yet successful revival which it was the pride of our own days to see? He had been delighted with the successful results of the mission of Mr. Cole, but the name of Verona had suggested a painful reflection in connection with the delightful specimens of ancient art which were there to be met with,—it was that these glorious works, which were a comfort to man and a glory to mankind, might be at any moment annihilated by the besom of destruction of that accursed war,—for it was accursed in its beginning, it was accursed in its progress, and it would be accursed in its end.

Mr. Mathew Bloxham, of Rugby, seconded the motion of thanks to the chairman; and referring to a visit which he had paid two or three years ago to the Lakes of Killarney, mentioned that on the beautiful island of Innisfail he had seen a ruin which was only mentioned in the guide-books as "an ancient abbey," but which bore undoubted evidence of having been a monastery of so early a date as the fifth century. He believed that in Ireland, from the circumstance of her soil, there was yet remaining a mine of wealth in architectural matters, which had never yet been properly elucidated.

The Chairman, in returning thanks, said the progress of their museum had been for many years a source of delight to him; and if he had been able, however slightly, to do anything for art, how highly was he rewarded when a resolution such as they had now adopted was proposed by one who himself had laboured so earnestly, so ably, and successfully in the cause; and was seconded by one from whose works, though he had never actually seen him before, he had drawn in ripe stores of knowledge. The name of "Bloxham" was a household word that they all loved: it was he who had fixed their ideas and given them clear perceptions with regard to style; and to see him come amongst them and utter words of encouragement was in itself an augury of success. It was indeed cheering to behold a gathering such as this in times like the present, in the midst of what had been well called an "accursed war,"—a war produced by the most loathsome and grovelling of despotisms, growing out of socialism, republicanism, and deep pitiless hypocrisy. An assembly such as this in the midst of the prevailing destruction was an earnest of the future glory of art in this country, and of that healthy English spirit which encouraged and inspirited us to keep our way in the midst of surrounding trials, and troubles, and difficulties and dangers. The chairman then directed the attention of the meeting to a specimen which they would find in the collection up-stairs, and which they owed to the inventive industry of Mr. Scott, and the workmanlike ingenuity of Mr. Cundy—he alluded to the restoration of the end of Queen Philippa of Hainault's monument at Westminster Abbey. A small sum of money was all that was required to purchase this, and to place it in its proper position in the "venerable cathedral."

Mr. S. C. Hall, having been called on by the chairman before dissolving the meeting, next addressed the assembly. He congratulated them on their numbers and influence, but said that he regretted to miss the hard-handed artizan, on whom gatherings such as the present would exercise the most beneficial influence; and whom, though it might appear a want of courtesy to say so, he would rather be addressing. He believed the mission of the architect to be infinitely superior to that of the artist, for while the work of one was for the most part jealously secluded in galleries, the creations of the other were for the multitude and for all time, or nearly so. If it were true that he who made a useful thing did a public good, and that he who made a beautiful thing made a joy for ever; was not he who combined these two a public benefactor indeed? It reminded him of the story of the old woman who followed the sultan, exclaiming "Thank you for your gold, thank you for your jewels." "Good woman," he replied, "you owe me no thanks; I have given you nothing." "No," she answered, "but you have allowed me to look at your fine ornaments, and that is all you can do yourself." But if tasteful architecture were so much to be desired, what was to be thought of the genius which had given them "illuminated indicators." (Great laughter.) He confessed, that on his way past Hyde Park-corner, he had been tempted almost beyond resistance to shatter that erection. He was afraid that if great exertions were not used to prevent it, the same execrable taste would reign, and be observable in the drinking-fountains which were spreading rapidly throughout the country. His main object in rising, however, had been to recall to their attention that important class, which it was so desirable should derive instruction from the working of that institution; and who, when properly trained, would be capable of becoming more a skilled companion to the architect, than the mere machine with which he worked. Mr. Hall concluded an animated and stirring address with expressing a hope that this result might yet be accomplished, and he believed that the arrangements which were now in progress in the Museum were calculated in a great degree to lead to that desirable result.

The proceedings having been brought to a close, the meeting shortly afterwards adjourned to the refreshment-room and picture-galleries.

FREAKS AND ODDITIES IN BUILDING.*

KENT'S elevation of the Horse Guards, facing St. James's-park, possesses merit, and makes a more happy impression than many other buildings of mark in London; but the central archway is much too diminutive every way. Hogarth could not resist from satirising it, and represented the head of a carriage-driver knocked off by collision against the key-stone of the arch. There is no fear of the French architects not making their coach-doors high enough. Staircases, which should be of easy ascent and descent, without any abrupt winders or awkward steps, or treaders too broad, should, as well as doors and arches in passages, or halls and vestibules, have plenty of headway. In more than one house at Rome the interior mode of ascending and descending to the different rooms, is by a winding level of stone or of concrete, from top to bottom, without a single stair, and we believe constructed on the principle of similar means of mounting, as occur in houses in Malta and in Sicily. A very curious staircase, in a large open space, surrounded by houses, whose rooms as lodgings are accessible through it at different floors, is seen at Paris, in the north-east corner of the Palais Royal: persons ascending on one side can, with difficulty, see persons descending on the other side. Their small spiral stairs are well known and admired for their contrivance, and the small area they take up in shops, where any other kind of wider stair would be in the way of business; and in *cafés* and *restaurants*, where space is valuable. We have seen more than one of these compact stairs, their circle less than 3 feet diameter. At No. 163, east side of Palais Royal, is a crystal staircase. The tools and the machines invented, or perfected, by the French mechanics, and employed in their works and constructions, are very satisfactory and efficient, from the most complex instrument down to the wheelbarrow and the spade. In the framing of their vast scaffolding, and in theatrical machinery, in apparatus for manufactures, they excel. The machine called *passerelle*, used for lowering masses, and recently employed for lowering the arches of the Pont-Neuf is most ingenious. Their mode of removing large hewed blocks of stone from carts provided for the purpose, with a sliding bottom, from which they

* See p. 341, *ante*.

tilt it to the spot required for a building; and their simple mode of fastening and securing loads of goods or of materials, in a truck and in a cart, by means of a vice, fixed at the head of the cart and ropes,—all this shows they come from an inventive or improving race.

In Nash's time the houses in Regent's-park were imprudently built of timber which was infested with vermin, difficult to get rid of, and which forced some of the tenants to quit. The precaution ought previously to have been taken of steeping them in wooden tanks (made water-proof by oakum and tar driven between the joints), of *corrosive sublimate*, or submitting them to Ryan's process. Some buildings have sunk, and become cracked by want of solidity of the points of support: several domes have given way several inches: this was the case with Soufflot's dome, he not having taken sufficient precautions: and Rondelet obviated this defect by substituting masses of construction to the columns and to the pilasters which had sunk. The dome of St. Peter's has been strengthened by iron bars in several places.

We admit the beauty of trees near one's dwelling; and such is the passion of some for having trees to grow as near to their bed-room windows as possible in order easily to see their foliage, and to hear the early birds sing of a morning from their branches, that they would perhaps forego some want of domestic comfort within rather than be deprived of their favourite object without. But trees throw out the moisture which they absorb, or rather during heat it evaporates: and therefore they should not be planted too close to windows, especially of sleeping-apartments. Books, papers, and linen have become mouldy and rotten by having been kept some time in attics to which trees approximated. Want of sufficient light and air in a building, bad prospects from windows, miasma rising from neglected or badly formed drains under it, make a man's home his enemy; a source of misery, when it should be a source of health and comfort, and where he ought to find the common necessaries and some of the luxuries of life. Many are the victims to disease on these accounts. But we have remarked some who could afford to live in a model cottage, preferring, from the force of inveterate habits, one black with smoke, begrimed with dirt, and infested with bad air. They are of those who "pay too dear for their whistle."

Not only in Trafalgar-square, where they have often, from bad management, not been able to force by pumps sufficient water for the fountains to play, and the element to flow in gutters to clear the space of accumulated dirt; but from the scarcity or dearth of it in the narrow streets and confined habitations of the poor and of the labouring classes, one would think such an important aid to cleanliness and health was begrudged them.

The want in London of embanking and quaying both sides of the river Thames, and of draining waste land that lies thereabout,—of getting by a perfect system a large supply of the pure element, astonishes foreigners who visit England, and whose own cities and even villages are remarkable for their number of baths, of fountains, of lavatories, and of drying-grounds. They perhaps are not ignorant of the sources from which it can be procured, and the facility, waiving the expense, with which it might be conveyed by aqueducts; and they will naturally attribute the absence of these advantages and this luxury to jobbing, or to the obstacles put in the way of accomplishing that which is opposed to the interests of some party or some corporation. There can be no doubt also that evils long exist festering in society and in crowded cities, that the progress of improvement is arrested, and injury done to architecture by the declaration made wilfully or at random against the exaggerated expenses which the construction of public monuments occasions.

Works left unfinished, and demonstrating the impossibility to complete what has been begun, and of no use if they could possibly be finished, rank among other kinds of folly that is a snare and a disgrace to him who attempted what he could not perform. How wounding to one who has pride for it to be said of him, "This man began a work and is unable to complete it." It is a repetition of the tower of Babel, the tower that was commenced, and already erected to a great height, but not as high as human sanity wished, and not stopping at the limit that human wisdom would have dictated. It was like other vain and fruitless efforts of that ambition that overleaps itself, of that pride that goeth before a fall. However, in that same country, and about the same time, as redeeming features or as reparation for that failure, and perhaps profiting from it, much was built, many kingdoms and dynasties were formed; Thebes arose in her magnificence, and her gates and colossal obelisks were celebrated; Memphis was wonderful in her pyramids; Nineveh revealed her riches; and, thanks to modern travellers, the relics of the latter, which were buried under the sod as in a sepulchre, now form the nucleus of a most curious and valuable collection of that ancient world in our British Museum. Sometimes you see, in addition to the freaks and oddities of buildings we have already enumerated, a series of brackets or consoles placed in the frieze of the entablature, as in the old front in the court of the Imperial Library, at Paris, which are nothing but false supports to the cornice, that was never supposed to need them. This occurs on the external ornament of the church of the Invalides,—ornaments which are always referred to in praise by architects for their rich and sumptuous effect and well-arranged distribution. This is a pity, because of the great reputation of Mansard, and because his dome, and works in the city and those at Versailles, have had much influence upon French architecture, since he was the architect to Louis XIV. The fault, however, is screened by the greater beauties of this noble building. The falling into these errors by professors themselves only shows the power of examples over precepts, and the former sometimes causing them to forget the latter. There is hardly a house or a street in Paris, and we may say many in London, the roofs of which are not *Mansardé*.* The habit of breaking, by small windows, the length and the breadth of the frieze destined for another purpose, cannot be justified on any grounds that we can conceive, and it excludes the opportunity which it offers for a display of sculpture, or some plain inscription in gold as a relief to it, and giving a character proper to it; or of some emblems of industry or of knowledge to which the building is consecrated, and for which the frieze and the pediment, from time immemorial, have served at once as a field and as a frame. The position and change of place which have been given to these consoles are chimerical, and wholly unwarranted. That does not deserve the name of ornament which, like a mask, hides some falsification, or makes illusion by its misapplication, and deceives the eye. Ornament should be above creating any suspicion of being a covering only; for the real motive and signification of ornament,—for the beauty on which it depends, look at the guttæ beneath the triglyphs, the lions' heads at the extremities of the pediment, the *antefixæ* at the end of the inclined divisions of the roof, &c.: these things will explain more powerfully what ornament is, and what ought to be its source, than the best precepts or maxims of architecture. Everything—the smallest details; trifles that may be tributary to perfection by their treatment; everything that enters into the composition of such a master-work as is above alluded to, is embraced: all their forces are balanced and united into one system of equilibrium.

By the practice pursued in Paris in building large shops, *cafés*, and *restaurants*, and of highly decorating them,—so that though there is some degree of encasing and enveloping of the parts of construction, that is not done to deceive the sight,—they obtain that which is their object, and a fair one it is, to attract by the splendour of effect, which is appropriate to such places of refreshment and rendezvous.† Observe these works in course of construction, and it will be a lesson on the science of building, or remind of what is worth recollecting always: you will trace among the practised workmen that combined confidence and care that bespeaks a superior intelligence of the work under their hands: you will see the means employed for facilitating and for abridging labour: you will see the greatest strength secured by the smallest scantlings of the materials, and the parts very firmly put together;—strong iron columns, but of small diameter, supporting iron bressummers, and keyed together, holes for plugs being provided in flanges in the caps of the columns and in those of the bressummers, and which are afterwards made objects of attraction, covered with wood panelled, carved with flowers or bouquets, or coloured with festoons and vine-leaves and grapes. Gilding is dominant, and perhaps looks best on a cream-coloured or white ground. The ground of the ceiling is generally white, if not wainscotted, with a centre-flower painted. This account answers only to the most common description of *cafés*. Some of the *cafés* in the *Palais-Royal* and the *Café Parisien* (on one of the old Boulevarts), recently finished from the studied designs of M. Duval, are worth a visit from London, or farther off, in order to see them. This architect has erected one or two very beautiful buildings in the French *renaissance* style: one is in the great avenue of the *Champs Elysées*. The practice of casing and protecting material, as mentioned above, provided it is sound and will bear inspection, is authorized by ancient examples, and is not to be put in the same category as the faults and disguises which some builders have recourse to, nor will it be except by the most exacting and most fastidious. In the ruins of the temples of the Forum, on the Capitoline Hill, and in the magnificent baths of the emperors, may be noticed the best-executed brickwork within their walls, and thick slabs of beautiful marble laid on it for the exterior surface. The only effect of the workmanship of the one and the imperceptible juncture and brilliancy of the other, is to raise admiration the more the system and the sentiment that had given it such a rich but solid tone are thought of.

The pediment is another feature misapplied and misused almost everywhere: sometimes the raking mouldings that compose its configuration are broken, and sometimes the horizontal ones; and the imagination in playing upon it has turned, and tortured, and twisted it into all sorts of strange and odd forms. The ancient Greeks would hardly recognize it. The ancient Greeks would be astonished could they see the violence that has been done to that crowning member of their monuments by the moderns, for one object with them in art was to render to everything its due. There were great and distinguished men among our neighbours and allies,—Lescots, Levans, Perraults, Lebruns, Dumonts, Soufflots, Mansards, Blondels, Viscontis; and yet they were liable to and seemed to tolerate and countenance many defects, which might be termed *à la mode*: fashion has been often the tyrant that has imposed them: of course many of these minor defects are effaced by striking beauties which atone for them.

And now a word on contradictions in proportions, and then to conclude with a few further remarks. There are found, both in their buildings and in ours, proportions of all kinds, and which perhaps justify all sorts of opinions. It is thought that the Romans did not more agree than the Greeks upon fixed and invariable rules or laws: although these nations appeared to owe less to their inventors, they affected to make their orders as much composite as they could, and regarded the proportions of this art as arbitrary. The reason of what they sometimes did in this respect might have been ascertained by some, but hidden to others. The doctrine that Vitruvius has left us in writing, and which has given rise to various comments, does not more agree with what was practised in his time and the examples that remain to us of antiquity. So many varieties make us presume that the greater part of architects who have studied the works of the ancients think that the proportions should be the same in the better edifices, that they have received the best proportions, and that it is requisite to search into them, and minutely to study their details, to know their distinctions: others, on the contrary, have imagined that every building, according to its position, may occasion the difference of proportion; that they were varied to be in unison with the different qualities they were to express; that the Greeks and the Romans had not general principles, but only applicable to particular cases and circumstances; and that, in short, the different aspects furnished them with so many proportions, according to the diversity of circumstances, of locality, of situation, and of space. Hence the many and the different systems of the orders. Vignola, a good authority, and who was imitated by the priests, the Jesuits, and architects, in numerous churches, in Europe, during the fifteenth and sixteenth centuries, differed from Serlio, who differed from Palladio, who differed from Scamozzi. One pronounces "architecture" with accents and tones very opposite to those of another, but all are masters of their art, or they are pupils of the same master. Open their great works and commentaries with their notes and experience: they have endeavoured to reconcile and to determine its proportions: you will see that they, instead of being fixed, are fluctuating; that they do nothing but show by the diversity of their opinions the difficulty, if not the impossibility, of succeeding in

* We have, after Mansard's construction, our curb-roofs. The word also in France answers to our *attic*.

† The *café* Pedrochi at Padua is of extraordinary extent and splendour. The great piazza, laid out with fountains and running water, and statues of all the eminent men of Italy, is a very interesting spot.

it: you will find that there are not two proportions in architecture in which they unanimously agree, and that there are not even two edifices among them, that these architects have executed, in which they have observed the same identical rules. For example, some have given to their entablatures the fourth of the height of the columns, others have given the fifth, and others have held to a medium between these two proportions. The elevations of pedestals—those of columns in connexion with their diameter or module, the height of a balustrade to that of the cornice—are not determined with more unanimity: the heights, the relations of mouldings to one another, those of friezes, of architraves, of capitals and of bases, of pediments, offer also continual opposition and contrarieties. The Corinthian colonnade of the Louvre does not resemble more that of Vignola, than that of the palace of the minister in the *Place de la Concorde*.

To collect and to dispose a variety of objects into combinations where harmony and contrast are blended together, is one of the charms of art. There is a great want in many cities of sculpture-groups in open spaces: these, by a happy union of opposite qualities of the objects of art, make a strong and permanent impression; not so a lonely column in the centre of some acres of area. The figure on the top of the elevated pedestal is too high to deserve the true expression of the hero or the duke whom it is supposed to represent. In northern countries, its physiognomy is often obscured by clouds and fog: it is no subject for the study of a Lavater. Placing sculpture too high for observing clearly and with ease the nature of the subject treated, or, if the space afforded a good field for the introduction of sculpture, not making it large enough to be seen well at the distance it is situated from the eye, is a defective result. A great building should have a great cornice, as an excellent orator should have a powerful voice. See the cornices of the Farnese palace, Rome, and the palaces of the Strozzi, at Florence, and the great cornice of the vast dome of St. Peter's. Placing too small a statue on a pedestal of considerable elevation, on a rock, or triumphal arch, consoles of an exaggerated size beneath a light balcony; putting any ornaments where they are not required or seen to advantage, show a vicious propensity. S. Nixon, sculptor, recently dead, a few years ago executed a very good standing statue of Dr. Valpy, for Reading Church, and it was put a long time into the belfry, because the wardens and vestry could not determine upon where to place it. Borromini had his vagaries. His statues on the bridge of San Angelo, in Rome, almost startle the passers-by, who fancy that strong winds are threatening to blow them down, the hair and drapery of the figures streaming in the air in all directions. The statue lately erected to Sir Robert Peel, in the heart of the city of London, so well situated, so characteristic of that eminent statesman, speaks to the public still. But not so statues of the men of England's pride, whom the sculptor has stripped of "the habit in which they lived," and invested them with the Roman garb, as in the statue of James I. at the back of the Banqueting-house, Whitehall. Some cathedrals (as that of Poictiers) are remarkable for their length and for their breadth, but their height does not answer to their two other dimensions. There may often be two or more edifices or churches, as the imitations of Jesus College, or St. Ignatius's, at Rome, after Vignola's designs, which at the first glance seem alike and analogous in their disposition, but when we come to compare and analyse the parts of collocation of them, we find that the work of one, in many respects, is superior to that of the other. There may be several which on first attention seem to be of equal merit, but when we commence to study the *minutiæ* of their design, and the varied conveniences of their respective plans, and the relative degrees they have of serving useful ends, we find that one has supplied comfort, and favours health more than the other; that its rooms, allotted to different purposes and to different pleasures, have had the proper aspect assigned to them; and regard the proper points of the compass. The artist's studio, the library, the bed-room, the conservatory, have each their appointed lights. Exactitude in this particular is a great object in the study of the plans of building: the neglect of it is a great defect. Perhaps we are over-nice, but we like to see the centre axis of churches laid down true to the leading diameter of the compass, and a specimen of orientation. Aspects are of no little interest to the architect in projecting the façades of his villa or palace, on which he is ordered to bestow colour or *chiaro 'scuro*.* We observed, when watching from a vessel in the port of Genoa, her famous palaces glittering with all hues, and the upland city, variegated and standing out in showy relief with olive plantations. On disembarking and looking at those which faced the sea and which had been painted in distemper, we remarked that owing to exposure to the breezes from the salt waves they had been considerably effaced, but that at the back of these palaces, which were considerably sheltered from them, the colours were fresh and brilliant.

Many buildings owe their materials and their existence to the ruins of other buildings; but the means that are had recourse to for this purpose do not justify the end: it is like robbing Peter to pay Paul. During the pontificate of one or more popes, the stone of the Coliseum at Rome, then suffered to be a prey to the avaricious, was, piece by piece, where the ruins of it had begun, taken away to erect more than one Italian *palazzo*. It is said that a great part of the Farnese palace was built from it. Thus it was a quarry for modern structures; but, for a long time since that, succeeding popes have shored up the remaining parts of this mighty amphitheatre with buttresses of masonry, and it is now looked over and preserved by strict edileship. The palaces thus constructed are immense, though it might be only their front elevations and the exterior of them which were thus constructed; but such is the unequalled and overwhelming grandeur of the Coliseum, that what has been abstracted from it appears to leave but a small gap. In 1664, Charles II. king of England, bought, for his palace near St. James's Park, the stones that had been squared and stacked ready for the building of the cathedral of St. Paul.† In some town in the French dominions, where there was a scarcity of building stone, a tax was levied by Napoleon on every one entering it in a cart or vehicle of any sort, to deposit a stone not less than a given weight, and thus supply the contractors with that which they wanted, and which was difficult and expensive to obtain by any other means. Many roads in London have been macadamized and some streets paved from pieces of rock, lava, and other hard substances from foreign countries, the same having been brought to our shores and unloaded from ships in which they served as ballast. Not many years ago, in beginning to lay the foundation of a new street near Finsbury-square, City, the excavators in digging discovered, a little below the surface of the ground, a number of trunks of trees which had been felled for material for fire, or for clearing fields which were then there, for future contemplated improvements. It happened by a curious coincidence that this series of timber corresponded exactly to the line set out for the foundations and frontage of the houses, and they were used as points of support to them.

Hoxton and the City-road are places associated with our younger days. Many of the old houses there, and whence the omnibuses to and from the Bank continually run, and where the traffic is so great, are remarkable for the lofts and flat roofs with which they are surmounted; for in the old days they were surrounded with or commanded a very good prospect of fields, where cattle pastured, and the "Shepherd and Shepherdess's field," lying between Hoxton and Islington, was a celebrated place for the inhabitants to stroll through and lounge in on a Sunday. The flats on these roofs afforded to a large class of the people who lived in this neighbourhood the means of indulging their peculiar propensities: bird-fanciers abounded in this locality: amateur florists, and washerwomen were thus provided with proper sites for training the birds, cultivating flowers, and drying the linen. There are many old buildings in London, and other cities in England and in Europe, which have perhaps little to recommend them in respect to their architectural features, but yet are very interesting from the great names of those who lived in them, for a singular epigraph they bear, or for some curious associations connected with them. The signs formerly used by different trades, referring to their different occupations, and the origin of the names of streets, are historical matters not unworthy of the attention of the antiquary.

FREDERICK LUSH.

* In the great church of *San Petronio*, in Bologna, is a coloured inlaid pavement of the zodiac, and signs of the celestial globe; also some problems and plans. There are shown the designs of the celebrated architects of the *Cinque Cento* in Italy, who competed for this pile. Vignola, one of the greatest architects of that epoch, was buried here, in one of the greatest churches in Europe. The Gallery of the Painting of the Bolognese school, the streets of arcades, and the bronze fountains, render it a place of note.

† Rapin's History of England.

THE AUSTRIAN STATE RAILWAYS.

THE Austrian State railways (Société Autrichienne I. R. P. des Ch. de fer de l'Etat), consist of the Northern line, the South-Eastern (Marchegg to Szégédin, Témesvar to Jassenowa, Orawitza to Basiasch), and the line from Vienna to New Szœny. The total amount expended on the above for works up to the end of 1858, since the constitution of the company, is 35,890,500 florins; surveys, engineering, superintendence, &c. 2,034,500 florins; total, 37,925,000 florins, or about eighty-eight million francs, at the mean exchange of 129·34 florins for 300 francs.

It appears by the report of the directors to the shareholders on 30th May last, that the Northern line has a total length of 469,804 mètres, not counting that from Bodenbach to the Saxon frontier, on which a second line of way has been laid to a length of 5,880 mètres, besides various supplementary sidings for stations. On the South-Eastern line, from Marchegg to Szégédin, much work has been done in substituting stone and iron work for timber in the bridges. The works of two very important ones, those of the Gran and the Eipel, are of three bays of wrought-iron trussed girders. The former has spans respectively of 44 m. 556 mill.; 56 m. 880 mill.; and 44 m. 556 mill. The Eipel bridge has also three, of 43 m. 228 mill.; 50 m. 623 mill.; and 43 m. 228 mill. and was opened for traffic on 7th April last. The Gran bridge is to be finished this month. The only timber bridge remaining on this section is that of the Waag, the soundness of which is enough to make it last for some time to come.

The erection of workshops and machine factories at Neuhaussel and Pesth, proceeds rapidly. The important stations of Czégled and Szégéden, have been newly organized, and completely finished, as have been those of Temesva (including the third great workshops). The receipts of 1858, for the whole line, 1,323 kilomètres, were 14,575,732 millions florins; 106,681 florins over those of 1857: the receipt per kilomètre was 11,811 florins, and the working expenses, 5,636 florins. These latter have been reduced from 50·21 per cent. to 47·72 per cent.

RAFFAELLE'S DRAWINGS.

THE University of Oxford, during the repairs of its public galleries, has liberally consented to the removal of its original drawings, by Raffaelle and others, from Oxford to the South Kensington Museum, where they will be exhibited for the next two months. Permission has also been given to the Department to take photographs of those drawings required to complete their series of Raffaelle drawings which have been collected from public galleries at home and abroad.

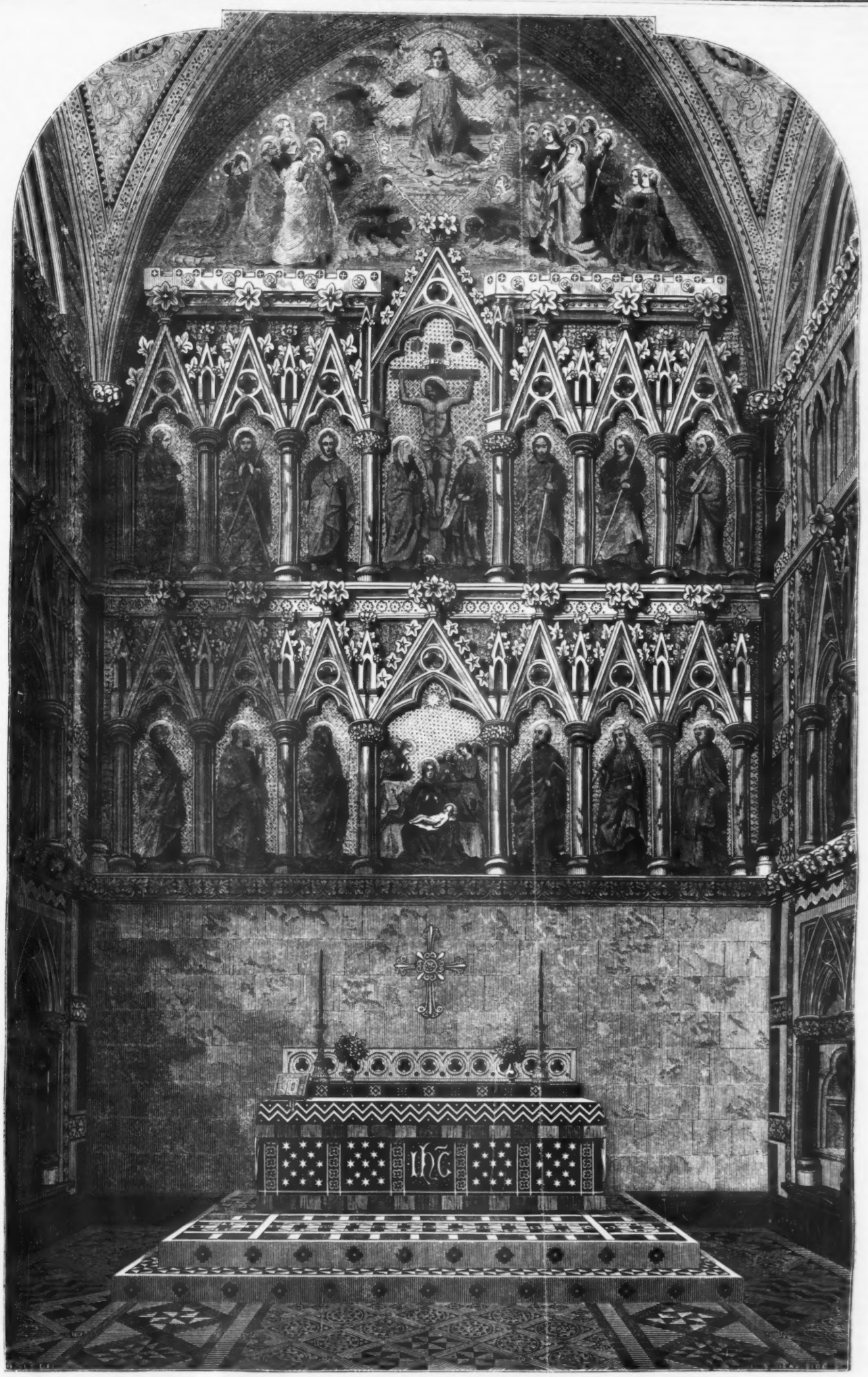
THE CHURCH OF ALL SAINTS, MARGARET-STREET, LONDON.

FOLLOWING up the views, interior and exterior, of All Saints', Margaret-street, already given in our pages, we add a view of the reredos, decorated in fresco as, already described, by Mr. Dyce, R.A. The paintings, it will be seen, are in panels, formed by carved alabaster canopies and columns, three stories in height, and comprise on the lowest the Saviour in the lap of the Virgin, with three of the Apostles on each side; the Crucifixion, with the six other disciples, three on each side; and at the top, the Saviour throned in glory, surrounded by the Apostles and others.

Originally the architect intended that, instead of the large picture at the top, there should be three alabaster niches, with canopies like those below, and that there should only have been a difference of 4 inches in the width of the centre and side niches. After all, it appears that the centre niches were made scarcely wide enough, and, in consequence, Mr. Dyce was obliged to double up the arms of the crucifix. The truth is, that the whole design ought to have been remodelled, to adapt it to receive the particular subjects which it was proposed to have painted within the compartments. We have already expressed our admiration of many of the figures.

With respect to the vacant spaces we do not know that anything is decided, except that the row of panels on the north aisle wall is, on the suggestion of the artist, to be filled with subjects, executed by inlaying on the stone, something like the old brasses, only more elaborately, the grounds being diapered. The outlines and hatchways are to be cut in the stone, and then filled with black cement.

We have heard talk of a Transfiguration in fresco on the large spandril to the south of the west window, and an entombment under the window, but these will probably wait for funds.



CHURCH OF ALL SAINTS, MARGARET-STREET, LONDON: REREDOS.

Decorations by Mr. W. Dyce, R.A.

PROPOSED WORKS AT CHICHESTER CATHEDRAL.

THE restoration of this cathedral was commenced so long ago as 1847, from which time it was steadily proceeded with, until nothing further remained to be done but the choir: this portion of the work was, however, deliberately postponed by the dean and chapter, who decided that nothing should be done until they could determine upon some plan by which, without violating architectural propriety, a larger portion of the cathedral might be rendered available for public worship than at present.

Matters remained thus in abeyance until the death of Dr. Chandler, the late dean, who left in his will the sum of 2,000*l.* to be expended in the decoration of the cathedral, expressing at the same time the hope that a sum might be raised to be applied in connection with it. Under these circumstances, a committee was formed to carry out the intentions of the late dean, and to procure such other funds as should be found necessary. It was then agreed that plans should be prepared by Mr. William Slater, the architect to the dean and chapter, and these having received their sanction and being adopted by the committee, we are now in a position to give definite information as to the shape which the restorations will take.

In the first place, the whole of the modern incongruous fittings will be removed; pews, galleries, pulpit, throne, altar-rail and reredos, organ and organ-screen. The present stalls, which are of Late Decorated date, are to be carefully restored, and will remain in their present position: new carved fronts to these, and new choristers' seats will be provided. In place of the present unsightly modernized altar-screen, it is proposed to erect a new reredos in stone, sufficiently elevated to shut off the choir, but not so high as to obscure the beauties of the presbytery beyond. The division of the choir from the aisles will be effected by iron screens, similar in character to the remains of the ancient ones still existing in the same position. The bishop's throne will be new. The organ-screen, supposed to have been formerly Bishop Arundel's shrine, will not be re-erected in its present position, but preserved in some other part of the building.

The arrangement of the seats in the choir, the precise places of the organ and pulpit, and some other matters of detail are left for future consideration.

It is further proposed to adapt a large portion of the nave for divine service, by furnishing it with seats for a considerable number of worshippers, and in order that these latter may be enabled to take part in the services going on in the choir, the return stalls at the west end will be removed.

The cost of the various works proposed to be done is estimated at 6,000*l.*

NOTES OF NEW WORKS IN IRELAND.

A MONUMENTAL oratory is to be built at Glasnevin Cemetery, near Dublin, according to designs by Mr. J. J. Lyons, architect. It will be placed within a planted enclosure, 14 feet by 8 feet, defined by a granite base course, rounded at the angles, and surmounted by a plain iron railing. The oratory will be circular on plan, 4 feet diameter in clear, fitted internally with a small altar, and having marble panelling, with Scriptural quotations engraved thereon, round the walls, and lighted from above. Externally, the elevation will be vertical to a height of 8 feet, surrounded by a granite base course, 18 inches high, and having continuous French rusties, impost and astragal mouldings, and surmounted by semicircular stone dome, terminated by a cross, and perforated at top to receive a flush light of very thick glass. The superstructure of the oratory will be of Scotch stone, from Crowhill quarry, near Glasgow, with brick lining, and plastered internally with Portland and Medina cement. The door will be of iron, massive, and perforated, and constructed to open in the centre and slide on iron rollers into the wall. The total height to top of dome will be 11 feet.

The first sod of the Cork and Kinsale Junction Railway Company has been turned by Colonel Beamish, in presence of a large assembly. Messrs. Trowsdell and Co. of Stockton-on-Tees, have contracted for its formation, at about 4,000*l.* per mile.

The new church and schools (Zion) are progressing at Rathgar, Dublin, Mr. Welland, architect; Messrs. Cockburn, contractors. The church will be 128 feet long, and consist of nave, transepts, chancel, organ, and choir at intersection of transepts. There will be a boys' and girls' school attached, and a teacher's residence at the west side.

Sundry works are to be done by the War Department at Templemore, Portobello (Dublin), and Cahir barracks, and tenders are invited.

Important alterations are to be made at Derry Cathedral, by the Ecclesiastical Commissioners for Ireland; and the same body are about re-building the church of Killany, co. Monaghan, and enlarging the churches of Knocknamuckly, co. Down, Donahendry and Drumnakilly, co. Tyrone; and fitting up internally the churches of St. Anne, Dublin city, Ballymoney, co. Antrim, and Leixlip, co. Dublin.

The County Court House at Longford is to be altered and enlarged, and a new entrance formed to the county gaol.

ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

THE distribution of prizes for the session 1858-9 took place on the 2nd inst. Lord Viscount Palmerston, K.G. presiding on the occasion. Professor Donaldson, as Dean of the Faculty of Arts and Laws, read his Report of the principal events of the session, after which his lordship, who was supported by Lord Brougham and many members of Parliament and distinguished individuals, distributed the prizes. Those in the classes of architecture and construction were as follows:—*Fine Art.* First year, prize and first certificate—J. H. Tarring; A. B. Hudson and Richard Kilby, second and third certificates. Second year's course, prize and first certificate—Louis Kossuth; Francis Kossuth and Horace Gundry, second and third certificates. *Construction.* First year, prize and first certificate—J. H. Tarring; A. B. Hudson, second certificate. Second year, prize and first certificate—L. Kossuth; A. Buzzard and Frederick Johnson, second and third certificates.

VENTILATION AND NEW PAINT.

ONE of the most sure tests of the want of right ventilation of a dwelling, or building used for other purposes, is the lingering smell of paint long after this kind of work has been completed. As an instance of this it may be mentioned that upwards of a month ago we had occasion to call at one of those houses in Fleet-street which may be taken as a type of many hundreds in the city. At that time the place had been newly painted, and the smell of it was very offensive. Although the time above mentioned has passed, in both the rooms and passages the smell of the paint is still distinct and unwholesome. In the staircase there is no ventilation by means of trap-doors in the roof or otherwise, and in several of the rooms there is a great neglect in this respect. If a sufficient quantity of air had been allowed to circulate, the injurious vapours from the paint would have been carried away. In houses situated in a similar manner to that mentioned, large numbers of persons are engaged in sedentary employments during several hours of the day. The want of ventilation is more clearly shown by the paint; but there are other gases pent up under such circumstances, which, although not so distinctly to be noticed, are very dangerous.

THE DRINKING-FOUNTAIN MOVEMENT.

Two public drinking-fountains ordered by the Brighton Central Fountain Committee have arrived. They are manufactured by Messrs. Dixon, Brothers, of Newcastle, and are made of iron, about 6 feet in height from the stone on which they will each be placed, and each consisting of a square pillar, with moulded top and base. In the front is a niche and basin, lined with white enamel, ornamented, in relief, around and above, on which is inscribed, "Drinking Fountain, 1859." In the centre of the niche is a gilt lion's head, from the mouth of which the water flows; and on each side hangs by a chain a galvanized iron cup, for the convenience of the consumers. Each side of the pillar bears the inscription, "Erected by the Central Committee. Honest water. Nature's beverage;" underneath which, on the right side only, is a brass plate, on which is engraved, "This fountain supplied gratis by the Brighton, Hove, and Preston Water Company." A lever on each side will, each time it is used, cause half-a-pint of water to flow, just sufficient to fill one of the drinking-cups. On the left side is an index, with a face similar to that of an ordinary gasmeter, registering on its three dials respectively at each revolution, 100, 1,000, 10,000 gallons of water consumed, at sixteen gills or eight cups to the gallon. At the back of the pillar, and near the bottom, is another and somewhat similar enamelled and ornamented niche and basin, intended for dogs to drink from.——A working-men's committee in aid of the movement has been formed in London; Mr. G. Clutterbuck is the hon. sec.——Bristol is being supplied with a number of fountains. One is in course of erection against St. Augustine's churchyard, near College-green. It is the gift of Mr. T. P. Jose. The basin and pillars are composed of white polished marble, the surrounding Gothic work being made of freestone, while the water will flow from a shell. One of nearly similar design is about to be put up at the expense of Mr. George Pope, of Stoke, in St. James's, and Mr. J. W. Hall is about to place another in a different part of the same parish. Mr. T. W. Hill, of Clifton-park, according to the *Journal*, gives one for Berkeley-place, and Mr. H. G. Langton another, for the open space at the junction of Hotwell-road and Limekiln-lane. A plain one, with granite basin, is already in work at Temple-gate, near the railway station, the gift of a young lady, Miss Hill; and Mr. J. Budgett has offered 100*l.* for the erection of four or five in the quarters where they are most needed. A fountain has been promised for St. Paul's by Mr. W. D. Wills, and three cast-iron water-pipes have been placed in other parts of the city by the Board of Health. All these fountains will be supplied with the company's water by the Local Board of Health, at the expense of the citizens, save that erected by Mr. Langton, who has undertaken to keep up a constant supply in the one which he presents at his own private cost.——The erection of a drinking-fountain has been resolved on by the Cheltenham Improvement Commissioners, "provided the same can be effected at a cost not exceeding 40*l.*" the site proposed being near White Hart-row, at the junction of the Gloucester and Tewkesbury-road. A Miss Carrington has volunteered to erect a second at her own expense as soon as the commissioners shall have erected one at the cost of the town.——A fountain has been inaugurated at Longton in the Staffordshire Potteries. It is simple in design, and consists of a lion's head let into the front face of a pedestal on which stands a Russian gun: at the base is a dog-trough, which will receive the superfluous water.——Two fountains have been provided for Burnley by Sir J. P. Kay Shuttleworth.——One, from a plan by Messrs. Senior and Wade, architects, is about to be erected in Peel-square, Barnsley, at a cost of about 30*l.* which has been raised by subscription.——Two fountains are to be erected at Perth,—one at King James's Hospital in King-street, and the other near the foot of High-street.——The following epigram has been dedicated, at Aberdeen, to Mr. A. Fidler, originator of a free fountain there:—

> When Orpheus struck his well-screwed strings,
> The trees and stones danced on the mountain:
> From strings relaxed our FIDLER brings
> More powerful notes;
> For thirsty throats
> Find cooling draughts dance in the fountain!

THE POLYTECHNIC INSTITUTION.

WE are asked to mention that the suggestion in our columns from a "Working Man," with a view to subscription, has been responded to in one or two cases. Something more extensive, however, is needed at once, if the institution is to be preserved. 345 ten pound shares are promised for, and donations have been made to the extent of 60*l.* Before subscribing, the public will, of course, look to see who are to be the directors, as upon these will, of course, greatly depend the future success of the establishment. It is, certainly, greatly to be desired that the Polytechnic should be maintained in efficiency.

THE WESTMINSTER PALACE CLOCK BUNGLE.

THIS affair is really becoming discreditable, and calls for interference. In the House of Commons the other day, Mr. Hankey asked the First Commissioner of Works what was the reason why only two faces of the clock were made use of; also, whether there had been any recent correspondence between the maker of the clock and the architect of the Houses of Parliament or the Board of Works; and if so, whether there was any objection to lay such correspondence before the House.

Mr. Fitzroy said the fact was, that the minute hands and the counterpoises for the clock were found to be so heavy that it was impossible to work the clock. The truth was, there was a divided jurisdiction between the architect of the palace and the maker of the clock. It was originally proposed that the minute hands should weigh 2 cwt.; but, having been cast in gun-metal, the weight of them had been increased to 3 cwt.

with something more than 4 cwt. of counterpoise within the clock-room, so that the total weight amounted to no less than 7 cwt. instead of 2 cwt. as originally proposed. Directions had been given to Mr. Dent, the maker of the clock, to construct new hands of the proper weight. A correspondence had passed between the Department of Works and the architect of the palace, but it would not throw much more light on the subject.

If we understand rightly, the architect, Sir Charles Barry, has had no control in the matter, although he is now, out-of-doors, getting all the discredit of it.

THE WEATHER AND ITS WARNINGS.

THE heat of the last few days has been so great that the oldest inhabitants are saying so much drought and heat do not come within their recollection: need we hint that such a condition of the weather requires the greatest sanitary care. The cow-houses in the metropolis and other large towns should be vigilantly inspected, and the strictest cleanliness enforced. All refuse should be removed once a week, and every part thoroughly washed.

When there is a chance of the water-supply becoming lessened, it is very common to neglect the poorer neighbourhoods. Those who gather the rents from the property so situated should consider it a matter of duty to see that the servants of the water companies attend to this important want. Persons of intelligence living near these localities might do much good by examining, occasionally, neglected neighbourhoods, and in case of neglect reporting the matter to the district officer of health. Lives might be saved by this means, and parish boards would find it profitable, even in a money point of view, to thoroughly cleanse, by both sweeping and washing, two or three times a week, the narrow and unwholesome courts and alleys, and when necessary, making sufficient use of deodorizing materials.

While it is most desirable to keep all surfaces in the neighbourhood of houses free from impure matters, care should be taken, except in cases of great necessity, not to interfere in such weather with cesspools and other deposits of any continuance; and when this is done, such works should be superintended by persons who will use proper measures for the safety of health.

Stagnant pools and ditches will just now attract attention most unpleasantly. Do not let them be forgotten when the temperature is lower, for then is the time for useful action.

CHURCH-BUILDING NEWS.

Dunkerton (*Somerset*).—The tower of Dunkerton Church is now being restored, partly by subscription, and partly at the expense of the rector. In order to ensure the future stability of the structure, says the *Bath Chronicle*, it was found necessary to remove much more of the original building than was first contemplated, and, in doing so, the steps and entrance to the rood-loft were disclosed, as well as a curious piece of carving, which may, probably, have formed the tabernacle to a saint. The restorations are being carried on under the superintendence of Mr. Charles S. Davis, of Bath, architect.

Chester.—Some of the beams in the roof of St. Peter's Church have been found to be entirely decayed and falling from their position. Repairs have been commenced.

Wolverhampton.—The new church of St. Philip, in the parish of Penn, has been consecrated. The edifice is in the English Gothic of the Geometric period. It is one of three memorial churches built out of funds raised to the memory of the late Archdeacon Hodson. The stone fount at the entrance of the church is the gift of the archdeacon, and the organ and the west window of Mr. W. H. Shannon.

Lapley (*Staffordshire*).—The church of All Saints, Lapley, which has been closed for a period of two years, during a partial restoration of the tower, nave, and chancel, has been reopened for divine worship. In the nave, mullions and tracery have been introduced into the windows, and the upper portion of the north wall has been rebuilt, and the west doorway and windows are new. The belfry floor, which formerly blocked up the chancel arch, has been raised, and the arches opened and repaired. The ceiling of the chancel, which was formerly level with the wall-plate, has been removed, the roof opened, and the timbers oiled. The chancel floor, also, has been raised, and the walls scraped. The basement of the tower has been entirely underbuilt, and eight new buttresses added. The old Norman arch, on which that part of the tower adjoining the nave stands, has been restored. The architect has been Mr. Bidlake, of Wolverhampton; and the builder, Mr. Godfrey, of Birmingham.

Birmingham.—The foundation-stone of Queen's Hospital Chapel has just been laid. The right wing, now nearly completed, is to be devoted to out-patients. The chapel will be an Italian building, with rusticated basement, lunette windows on the sides, and a triplet window in the chancel. The present contracts contemplate an outlay of nearly 1,200*l*. Mr. Bateman, architect of all the buildings connected with the Charity and College, prepared the plans, and the builder is Mr. William Matthews.

Chorley (*Lancashire*).—A meeting of the ratepayers of Chorley has been held to consider the propriety of enlarging and reseating the parish church. It is intended to take down the south wall and gallery, and to extend the building on that side. The Manchester Diocesan Church Building Society has contributed 150*l*. towards the expense, and the rest will be furnished by voluntary subscriptions.

Bowling (*Yorkshire*).—The foundation-stone of a new church, to be dedicated to St. Stephen, has been laid in Bowling Old Lane. Messrs. Mallinson and Healey are the architects. The style is Early Decorated, of the time of Edward I. The tower will be a prominent object in Manchester-road. The work (exclusive of the enclosure of the churchyard) has been let, according to the *Bradford Observer*, for the sum of about 2,500*l*. and the accommodation is for 500 adults and 130 children.

Sheffield.—Subscriptions for a new church at Chapeltown, near Sheffield, having been obtained, aided by a grant from the incorporated society, it is intended to commence the building as early as possible. Messrs. Worth and Campsall, of Sheffield, are the architects. The church is proposed to be erected on a site given by the Right Hon. J. Stuart Wortley, in Howsley Hall Park. The edifice will consist of nave, south aisle, and chancel, with small spire, and will accommodate upwards of 400, two-thirds free.——The works of the proposed cemetery for Brightside township, near Burngreave-wood, have been commenced. They have been delayed, says the *Independent*, by various difficulties, the last of which was, that when the contract had been let, the contractor discovered that he had made an error to the amount of 400*l*. and applied to the board to give him an increased price. This they declined to do, and the contract has now been let at 6,000*l*. to Mr. Richard France. It includes the road-making, draining, fencing, the erection of a lodge, and of the necessary episcopal and non-conformist chapels, &c. The woodwork is to be executed by Messrs. Ash and Clayton.

Huddersfield.—St. Thomas's Church, Longroydbridge, Huddersfield, has been consecrated. The building will cost about 12,000*l*. exclusive of the endowment. The church is built from designs by Mr. Scott. The style selected is Gothic, of the thirteenth and beginning of the fourteenth century, to which is added a touch or two of the Lombardic-Gothic. The building consists of nave, 66 feet by 24 feet; north and south aisles, 66 feet by 13 feet; chancel, 32 feet by 22 feet; north and south chapels, 18 feet by 13 feet; south porch, 12 feet by 10 feet; with tower and spire at the south-west angle, rising to a height of 175 feet. The aisle and chapel roofs are gabled. The nave has a roof of open woodwork, stained and varnished, the rafters being covered with boarding above, on which is laid Croggon's patent felting. The roofs are covered with Westmoreland dark green slate. The sittings throughout are open. Passing from the west end to the chancel, there are two noticeable features, namely, a stained-glass memorial window and a reredos. A cornice runs along the whole of the chancel, with nine ornaments painted on the wall above it. The large stained window in the chancel is in memory of Thomas, John, and Joseph Starkey. One compartment is assigned to each of the three brothers, and the window is by Messrs. Clayton and Bell, of London. The first group represents the Last Supper; the second, the Crucifixion; the third, Joseph of Arimathea begging the Body of Christ from Pilate; the fourth, the Descent from the Cross; the fifth, the Entombment; the sixth, Mary looking into the Sepulchre; the seventh, the Disciples in the act of assembling after Christ has risen; the eighth, Christ appearing in the midst, whilst they are deliberating; and the ninth and last subject shows them in the act of fishing. The chancel floor is laid with encaustic tiles.

Greetland.—The corner-stone of St. Thomas's Church at Greetland, near Halifax, has been laid. The church will be in the Gothic style, and will accommodate about 700 persons, including 200 children. The cost of the building is set down at 2,000*l*. and the endowment, 1,200*l*. The site, together with land for a graveyard, has been given by Mr. E. C. S. Walker. The contractors are Messrs. Cockroft and Co. of Rishworth; and the architect, Mr. T. H. Rushforth, of London.

Sherburn.—The parish church of Sherburn, in the East Riding, has been re-opened. The alterations have been carried out under the architects, Messrs. Atkinson, of York, by Mr. Weatherley, of York, glazier; and Mr. Danby, of Whitwell, carpenter. The church is now completely stalled. Five new windows, fitted with cathedral glass, with coloured margins, have been introduced; and, ere long, it is said, a costly memorial window, with appropriate figures and side lights of geometric glass, will be presented by Miss Rivis, of Wykeham, and Mr. William Rivis, of Sherburn.

Kilnhurst.—St. Thomas's Church, Kilnhurst, has been consecrated by the Archbishop of York. It was estimated that the expense of the building would be about 1,100*l*. and the cost has only exceeded it by about 20*l*. The subscriptions amount to 1,040*l*. The new edifice stands on a commanding position. The architecture is Early English. The length of the church is 65 feet by 35 feet, the principal entrance being from the west end by a small porch, over which is a bell turret. The stone has been an item of considerable cost in the erection, and was obtained from the quarries at Hooton Roberts. The accommodation is for 376 persons. The architects were Messrs. Pritchard and Son, of York; and the contractors for the entire work and fittings were Messrs. Chadwick and Son, of Conisbro' and Masbro'.

PROVINCIAL NEWS.

Smarden.—A new school for 100 children, with teacher's residence attached, has recently been erected here. The building is in the Gothic style, and is constructed of Kentish rag-stone with brick dressings. Messrs. Whichcord and Blandford, of Maidstone, were the architects employed; and the builder, Mr. Chittenden, of Tonbridge.

Colnbrook.—The new public room here has been opened. The room, which is 52 feet in length and 22 feet in breadth, including the gallery, in which 100 persons may be seated, will accommodate 350. Its size may be reduced by partitions. It is lighted by means of windows constructed in ornamental curves on either side of the roof. The builders were Messrs. Oades, of Egham.

Stratford-on-Avon.—The railway from Honeybourne has been opened. This is the Stratford-on-Avon branch of the Oxford, Worcester, and Wolverhampton Railway. The line is nine miles long, and starts from "Ladye Meadow," in Sanctalane, at the south end of the town, and not very far from the church. At about a mile from the station the Avon is crossed by a viaduct of eight dry arches, of 25 feet span each, and a girder bridge of two openings, each 50 feet wide. There will be two passenger-stations, one at Weston Sands, about three miles from Stratford, the other at Long Marston, which is six miles from the town. The Honeybourne Junction Station lies midway between Evesham and Chipping Campden. This railway is a single line, and has been made by the company's own engineers, Messrs. E. Wilson and E. Ponsonby.

Cockermouth.—The works in connection with the high-level bridge are progressing, under the superintendence of Mr. Watson, of Keswick. The inhabitants of the adjoining township of Embleton are raising funds for the construction of two bridges in their locality.

Workington (*Cumberland*).—The foundation-stone of new schools has been laid at Workington. The site, according to the *Carlisle Journal*, consists of an area of three-fourths of an acre, and is situated in John-street, nearly opposite the Primitive Methodist Chapel.

Peebles.—The Chambers' Institution is to be inaugurated in August next. It is domiciled in a restored mansion called Queensberry Lodging, which has been almost re-erected for the purpose. The reading-room, says the *Scotsman*, occupies the whole of what constituted the floor in the ancient building. Its dimensions are 45 feet long by 19 feet in breadth. The walls are wainscoted, and the room is handsomely furnished. At the height of 11 feet, a railed gangway runs round the apartment, leaving an opening in the centre 33 feet long by 12 feet across. On shelves on the walls above the gangway the books of the library are placed. By this arrangement, which resembles that of the Edinburgh Philosophical Institution, the reading-room and library form one apartment, the height of which, from floor to ceiling, is some

20 feet. The library is reached by the stair to the floor above. The number of volumes acquired and presented by Mr. Chambers was 10,500; and to these have been added a small public library in Peebles—raising the entire collection to nearly 13,000 volumes, representing all departments of literature. In connection with the reading-room and library are several apartments set aside for purposes of reference and study. The gallery of art, entered from the same stair as the reading-room and library, is 76 feet long by 16 feet wide. It has a lofty coved ceiling, and is lighted by a row of semi-skylight windows on each side. At the middle, on each side of the gallery, the roof is raised, to form a kind of transept, mainly for ventilation. The special object of this oblong apartment is to exhibit casts of sculpture, ancient and modern. The collection, though not extensive, comprises examples of different styles of ancient sculpture, from the comparatively rude, though grand productions of the Assyrians and Egyptians, to the refined conceptions of the Greeks, and their successors, the Romans. An apartment at the farther end of the gallery is a museum, consisting of objects of natural history connected with the county of Peebles. On the south side of the quadrangle of the building is a hall, for public meetings, exhibitions, and festive, educational, and other assemblies. The hall is a parallelogram, measuring within the walls 74 feet in length by 34 feet in breadth. At the west end is a raised platform 10 feet broad, with which deduction the floor has a clear expanse of 64 feet by 34 feet. The height from the floor to the central part of the ceiling is 35 feet. The method of lighting resembles that of the ancient Roman basilica. The hall will accommodate about 600 persons. A tower, 56 feet high at the south-west corner of the quadrangle, a verandah, and other conveniences, complete the accommodation. The value of the whole establishment, which is to be vested in trustees, as a free gift to the inhabitants of Peebles by their fellow-townsman, Mr. William Chambers, is estimated by the *Scotsman*, at 12,000*l*.

Glasgow.—The purification of the river Clyde, it appears, is about to be seen to by Mr. T. W. Kennard, C.E. designer of the Cremelin Viaduct, in Wales, and Continental railway works. According to the local *Gazette*, he is to consider and report on the plan of purifying the Clyde and Cart, by utilizing the sewages flowing into these rivers, by means of carrying them to fertilize the extensive sandy wastes of the adjoining county of Ayr.

Kirkwall (*Orkney*).—The ancient locality called the Parliament Close is now in course of renovation. The old buildings are being removed to make way for the erection of a suitable office for the Kirkwall branch of the Commercial Bank of Scotland.

GAS.

THE directors of the Sherborne Gas Company have resolved on a dividend of 7½ per cent. and a reduction in the price of gas from 8s. 4d. to 7s. 6d. per thousand.——The inadequacy of the gas works at Redditch to supply the town, and the nuisance arising from their position, have led to a movement for the erection of new works in opposition to the present company, who have refused an offer for their works, and have announced a determination to sell their gas 20 per cent. below whatever price the new manufacturer may fix. A maximum rate of 5s. 6d. per 1,000 feet is what has been announced by the projector of the new works, Mr. Clift.——The award of Mr. George Lowe (as umpire in the Wisbech gas question), has just been declared, the amount of the purchase money for Mr. Malam's gas-works being 10,330*l*. This is considerably more than the shareholders of the new company anticipated, and already a hint has been thrown out that the consumers must not expect to have their gas so cheaply as was at first stated: they are, however, promised a good supply and of an improved quality.——It has been determined by the Huddersfield Improvement Commissioners to purchase the local gas-works for the sum of 63,000*l*.——The foundation stone of the Aspatria gas works has been laid. The contractors are Mr. Graves, of Aspatria, builder, for the masonry; Mr. Fletcher, of the Lowca Iron Works, for the gasometer, retort, and fittings connected therewith; and Mr. Proctor, of Carlisle, for the piping, &c.——In order to generate gas for illuminating and heating purposes more economically than heretofore, Mr. Gerner, of Bayswater, proposes to mount a vertical retort in a suitable furnace, and fit the retort with one or more pipes for conducting thereto the material to be converted into gas. When making illuminating gas he uses one pipe to supply the liquid hydro-carbon to be converted into rich carburetted hydrogen, and another to supply water which is intended to be converted into hydrogen. When he requires gas for heating purposes only he dispenses with the use of liquid hydro-carbon, and obtains the gas solely by the decomposition of water into its elements.

OXFORD ARCHITECTURAL SOCIETY.

AT the Twenty-first Annual Meeting of this Society, held on Saturday, July 2, the President, Mr. J. H. Parker, in the chair, Mr. A. Church, F.C.S. of Lincoln College, read a paper on the Uses and Advantages of soluble Glass.

An extract from a paper read by the Rev. John Barlow before the Royal Institution, was quoted by Mr. Church, which entered into the method called Stereochrome, practised in Germany, and employed in the fresco paintings in the New Museum in Berlin. Besides the above uses, Mr. Church suggested the advantage with which it might be employed in paintings on glass, terra-cotta, plaster of Paris, whitewashed walls,—marble: he had himself made some experiments on earthenware also with success, and such was the hardness which the material gave to the coloured surface that the most violent rubbing, and even acids, could do little to affect it. For the decoration of brick surfaces, whitewashed ceilings, and plaster walls, Mr. Church recommended that the colours should be mixed with size and a little whitening, and laid on as in distemper painting: when dry, the painting to be syringed twice or thrice with water-glass.

The reader did not appear to be aware of the information on the subject which, long since, and recently, has been given in our pages.

GLASGOW ARCHÆOLOGICAL SOCIETY.

THE first excursion of this season took place on the 8th inst. The party left Glasgow at half-past nine o'clock, and proceeded by railway to Port of Menteith station, on the Forth and Clyde railway, where open vehicles were waiting to convey them to the Lake of Menteith, a distance of about four miles. Having partaken of luncheon at the inn, the party embarked in two boats, and after a stiff pull arrived at their destination—the island of Inchmahome, on which are the remains of an extensive priory. The clouds had by this time cleared away, and the sun shone out brightly on the luxuriant foreground, and the magnificent hills which hem in the secluded little lake. On landing, however, the scenery was soon forgotten by the archæologists, who were surprised and delighted to find the ruins so extensive and so beautiful. Having assembled in the choir, Mr. Alexander Galloway read a paper on the "History of the Family of Menteith, and the surrounding country," and thereafter the visitors employed themselves most agreeably for a couple of hours, exploring every nook and corner of the ruins; some busily plying pencil and rule, while others cleared away rubbish and weeds from dilapidated effigies and sculptured coffin-lids, or attempted to decipher weather-worn inscriptions. The whole of the buildings seem to have been erected about the middle of the thirteenth century. The chancel has no side aisles. The nave has only a side aisle on the north. The eastern window is composed of five graceful lancets, enclosed by one rear vault. The west gable is demolished to the window-sill, but fortunately the doorway is still extant, and very little injured. It is totally devoid of sculpture, but the detail is very elegant, and it seemed to be the opinion of the architectural members present, that there is nothing finer of the kind in Scotland. The conventual buildings are in a very ruinous state, with the exception of the refectory, which is almost entire. The gables of this little building are peculiar, the moulded projection of the skews being wrought on the horizontal courses.

In the year 1547, Mary Queen of Scots lived at the priory of Inchmahome, and close to the ruins a cluster of stately box-wood trees are pointed out as "Queen's Mary's bower." The party having again assembled here, Mr. Honeyman (hon. sec.) read a paper by Mr. J. B. Simpson, on the "History of the Priory." The party then left the island, and after examining the extensive ruins of domestic buildings on the neighbouring Island of Falla, returned once more to the inn, quite prepared to do justice to an excellent dinner which awaited them. Mr. J. T. Rochead acted as chairman, and Mr. Hart as croupier. After the usual loyal and patriotic toasts, the chairman gave "Success to the Glasgow Archæological Society," and several other appropriate toasts, and about six o'clock the party set out on their homeward journey.

PROTECTION OF WOOD FROM FIRE,

AS ATTEMPTED IN THE WOODEN HUTS AT ALDERSHOTT.

WE insert the following, at the request of a correspondent, in order that our readers may satisfy themselves, by experiments, as to the merits of the two compositions. (See *Builder*, June 11.):—

Materials Employed.—The silicate of soda must be in the form of a thick syrup of a known degree of concentration, and is diluted with water, when required for use, according to the prescription given below. The limewash should be made by slaking some good fat lime, rubbing it down with water until perfectly smooth, and diluting it to the consistency of thick cream.

Treatment of the Wood.—The protective coating is produced by painting the wood, firstly, with a dilute solution of silicate of soda; secondly, with the limewash; and lastly, with a somewhat stronger solution of the silicate. The surface of the wood should be moderately smooth, and any covering of paper, paint, or other material should be first removed entirely by planing or scraping. A solution of this silicate, in the proportion of one part by measure of the syrup to four parts of water, is prepared in a tub, pail, or earthen vessel, by stirring the measured proportion of the silicate; first, with a very small quantity of the necessary water, until a complete mixture is produced, and then adding the remainder of the water, in successive quantities, until a perfect mixture in the requisite proportions is obtained. The wood is then washed over with this liquid, by means of an ordinary whitewash-brush, the latter being passed two or three times over the surface, so that the wood may absorb as much of the solution as possible. When this first coating is nearly dry, the wood is painted with the limewash in the usual manner. A solution of the silicate, in the proportion of one part by measure of the syrup to two parts of water, is then made as above described; and a sufficient time having been allowed to elapse for the wood to become moderately dry, the liquid is applied upon the lime, in the manner directed for the first coating. The preparation of the wood is then complete. If the lime coating has been applied rather too thickly, the surface of the wood may be found, when quite dry after the third coating, to give off a little lime when rubbed with the hand. In that case it should once more be coated over with a solution of the silicate of the first-named strength.

N.B.—This composition is proof against fire *for one hour and a quarter only*.

COMPETITIONS.

Wellingborough Corn Exchange.—A limited number of architects were invited to compete for the above, and after looking into the merits of the several plans, &c. for six weeks, with professional aid (we are told), the directors awarded the premium to Messrs. Bellamy and Hardy, architects, Lincoln, under whose direction the works are to be carried out forthwith.

Independent College, Taunton.—The secretary has sent us a list of mottoes attached to designs *not* adopted, with the view of obtaining addresses to which the drawings may be returned, but we cannot insert it.

The Abel Smith Memorial.—Sir: I beg to draw your attention to the advertisement which has appeared, calling on architects to forward designs and specifications in competition for schools to be erected in Hertford, to the memory of the late Abel Smith, esq. To say that that advertisement is one of the brightest specimens of the provincial idea of the value of the architectural assistance required to give form to those grand conceptions which now and then emanate from our country cousins, is saying too little in its favour.

After an illness, do Hertfordshire folk remunerate their medical attendants merely by paying them for the drugs supplied during the attack, graciously adding, by way of compliment, in special cases, a small additional sum as a set-off against the bottles, corks, wrapping-paper, and sealing-wax necessarily used in the transmission of these delectable compounds? On the termination of a law-suit do Hertfordshire solicitors claim as costs, and do the inhabitants of that county pay those professional gentlemen, merely the amount they may be out of pocket for brief paper, red tape, and copying clerks' time? Do Hertfordshire tradesmen and mechanics ask nothing in return for goods delivered or articles manufactured, beyond the bare value of the raw material? If so, but not otherwise, I, in common with many others (for the effusion has already obtained some notoriety), can account for the barefaced impudence of the advertisement.

Ten guineas *premium* for designs and specifications! Is this a slip of the pen, or an error of the press? If neither, then the gentlemen who drew up that announcement either do not know the meaning of the word "pre-

mium," or they are in total ignorance of the amount of time and labour which must be expended on a design by an architect before such a work as he would like to set before the public as "complete in all its details," can be turned out of hand. One or the other. Those gentlemen are either sadly in want of a Johnson or of common sense. In short, if they expect that architects of any standing will enter the lists as competitors, on such terms as they offer, it is almost needless to say that they will be grievously mistaken; and, if they receive designs from others, not entitled so to rank (which it may reasonably be supposed they do not desire to do), it is very easy to perceive how far their knowledge of matters connected with architectural design will enable them to select either the plan best suited to the purpose, or that which fully complies with the requirements set forth in the document which you publish.

ONE INTERESTED, BUT NOT AN ARCHITECT.

STAINED GLASS.

Wycliffe Chapel (Stockport).—Memorial windows for Wycliffe Chapel, Stockport, are in course of preparation by Messrs. R B. Edmundson and Son, of Manchester. One is a window, in three compartments, bearing representations of Faith, Hope, and Charity, with texts, and filled in with ornamentations and emblematical devices, to be erected in remembrance of the late Mr. Alderman Hampson; and the other is a tablet window, showing a female figure in a devotional attitude, and inscribed to the memory of the late Mrs. Joseph Heaword, of Woodville, Reddish. The windows are nearly completed.

Church of Aspatria.—A memorial window of stained glass has just been placed in the south side of the chancel of the parish church of Aspatria. It is divided into two compartments, one representing the Annunciation, and the other the Nativity of the Redeemer. The whole being surmounted by a shield, bearing the arms of the donor. The window is from the establishment of Mr. Scott, of Carlisle.

"QUANTITIES."

SIR,—If you would call attention, through the medium of the *Builder*, to the wretched system of supplying builders with quantities for estimation at the eleventh hour, it might possibly induce those gentlemen who prepare the same, or the architect of the building, to take some steps to obviate this foolish and pernicious practice, whereby much inconvenience and unnecessary grumbling might be avoided.

In many cases it is impossible for accurate and necessary inquiries to be made, in order to prepare a proper estimate, in consequence: thence, in a great measure, the miserable difference in their amounts. I think builders are justified after the large sums of money (in some cases comparatively speaking fabulous) they are called on to pay, in being provided with quantities, got out with care, and not in the slap-dash fashion they are now daily being received. Surely, they ought to be allowed a fair and reasonable time for preparing a respectable and accurate tender. Surveyors, as they call themselves, seem to think a night and a day will suffice to money-out what in many cases have been with them a labour of weeks in preparing. They do not seem to consider that with large firms, often three, four, and five tenders have to be delivered on the same specified day. A week, and in some cases more, ought to be given between the delivery of the quantities and the receipt of tenders. It is quite time builders should take these matters up, and watch very jealously altogether the present quantity system, and this they would do if they studied their own welfare, and were determined to act fairly and consistently to themselves as well as the public. Did employers really know the ins and outs of building competition, as it is known to practical men engaged in it, they would not be so eager to support it as they now do. The gambling carried on under its auspices far outvies that on a race-course, the result being the frequent ruin of the one, or the sweating of the other. Take the architect's commission, badly regulated (sometimes not at all paying for his services), at others the opposite: add to this the frequent heavy charge made for careless quantities rendered, and the still more serious and heavy charge in proportion for what is termed lithographic charges, &c., a part of which goes into the architect's pocket too often: add also the excess of quantities—a necessary evil to provide against legal contingencies: these, when put together, and material often wasted, make "my dear building," notwithstanding the apparent startling low amounts and variations in the tender-list we witness from week to week. It is quite clear an alteration of the present system is required, in order that the employer shall be fairly dealt with, and the employed be allowed a profit of some kind, whereby he may deal with and be dealt by honestly. This cannot be under the present system, and will not be without a great change.

Your insertion of these remarks may lead to some further comment from others, whereby some service may possibly be obtained in this perplexing and unfortunate state of things, and which, if not altered or lessened, must at some arly period lead to very bad results. A. W.

PIMLICO STATION AND STOCKWELL.

WILL you be kind enough to allow me to state (through your valuable journal), the very great inconvenience occasioned to the inhabitants of Stockwell and its extensive neighbourhood, by there being no direct road either to the Pimlico terminus, as it is called, or to the new bridge at Chelsea, or to Battersea Park;—three places of great repute, and yet no direct way to get at them; the only way at present being a succession of zigzags—something like unto a flash of lightning: in fact, it will seem as if every impediment was created on purpose to prevent any communication between these places, viz. Stockwell and the new bridge. The only way is now from Stockwell down the Priory-road, then turn up the Wandsworth-road, then down what is called the New-road, to the Old-road, by the Duchess of York public-house: when there you come to a complete stop, not knowing whether to go right or left, as you can see the terminus and bridge, but you must go at least half a mile round to get at them. It would seem but natural that when a bridge was erected across the Thames, there should be formed ready means of access from all parts, on either side of the water, for the general accommodation of the inhabitants of the surrounding district, and every facility opened for that purpose: this applies, also, to the railway terminus. Now, on the Middlesex side, this accommodation is given; but on the Surrey side, none whatever. It is, therefore, high time that a direct road should be formed from Stockwell and Brixton, and other influential parts, past the Swan at Stockwell, down the Binfield-road, in a direct line, down the Priory-road, then cut a road from the end of Priory-road across the meadows, direct to the railway terminus and the new Chelsea-bridge. There is very little obstruction at present in the way of forming this road, as the land is chiefly fields, and therefore the cost would be small when compared with the great advantage obtained; and this improvement is one which such an extensive and respectable neighbourhood positively requires. It would also form a most eligible site for erecting good houses, the whole distance across the fields, towards the railway and steam-boat pier at the new bridge.

R. M. C. R.

AGGLOMERATED CONCRETE.

YOUR paper of the 2nd instant contains an article on "Concrete Building" (*Bétons Agglomérés*). The process therein described by M. Coignet as new has been patented and extensively used by me for many years. The basins for the fountains in the nave of the Crystal Palace, with enormous tanks for Messrs. Glass, Elliot, and Co.—true monoliths, attest its successful application to such constructions.

Side walks of slabs were laid by me at Hyde-park-corner, and in King William-street, City, eleven years ago, and are still there unchanged, while the York paving in close contiguity has been renewed several times.

The basement floors of many City warehouses, the stables of a large distillery, and immense mooring blocks for the Thames conservancy, are but a few of the many successful applications of this material; and elaborate experiments by Mr. Andrews, the Engineer of the London Docks, on the comparative strength of materials, prove its superiority over every variety of natural stone, granite only excepted.

Had M. Coignet read the specification of my patent, he could not have adopted more closely the language therein used in describing his alleged new process.

For the construction of sea-walls, piers, and breakwaters, I am confident there is no material equal to it, either for economy of cost, capability of resistance, or rapidity of execution. The Harbour of Refuge at Dover could be perfectly completed, of a strength and durability far surpassing that at present being carried out, at one-fourth of the cost, in five years.

The material I manufacture has a specific gravity but little inferior to that of granite, forms a perfect monolith (however extended the work), and becomes harder by age, whether submerged in water, or entirely in the air, or exposed to the alternate action of both. These are not mere assertions: the proofs can be seen and examined.

W. BUCKWELL.

A BIT OF CIRCUMLOCUTION.

THE COMMITTEE OF COUNCIL OF EDUCATION.

HAVING occasion to design a school-building in accordance with the most recent regulations of the Committee of Council of Education, and hearing that the information required had been embodied in a pamphlet form, entitled "Memorandum on the Organization of Schools," and that this document was to be obtaincd at the Council Office, I called in Downing-street, and on seeing the proper official made my request. After inquiry, where the schools were to be erected and other questions of a similar nature, I was asked if I was an *architek* (the *ch* pronounced soft). On replying in the affirmative, I was instructed to *write* to the secretary: this appeared a reasonable, although, on so small a matter, scarcely a necessary request; and, consequently, a polite letter was addressed to that functionary, who, however, has not deigned to reply, to this date. As the matter was pressing, after a few days delay, I again called at the Council Office, expressed surprise that I had not received a reply, when the following conversation took place:—

Official.—Oh, you have not received a reply: well, you will do so in due course: the secretary has a basketful of letters every morning, and things must be done in order.

Architect.—But time is pressing. I cannot proceed with my plans until I know the requirements of the Committee of Council. I am willing to pay for the document. Can I not procure it elsewhere?

Official.—No, they are not for sale; they cannot be had anywhere else. I suppose you are an *architek?*

Architect.—Yes. Are they not given to architects?

Official.—No; we don't give them to *architeks:* the gentleman who is going to build the schools must apply.

Architect (indignantly).—This is much too bad. I am instructed to prepare plans according to certain rules, which these memoranda alone can give, and I can neither purchase them nor have them given to me—a piece of circumlocution. (*Exit* architect in a pet.)

Now is not this a crying shame? The only, or at any rate the principal, persons interested are excluded from that information, which I maintain it is the duty of the council to afford to every architect in the country. The trouble which this and kindred offices give to architects, who are compelled to comply with their whims, is something serious, without being positively refused that information which is essential before a grant can be obtained. Can it be true that a brother professional man is at the head of this department?

SIGMA.

FOREIGNERS AND THE POLICE.

PASSING by the National Gallery a few days since, I was witness of a scene from which the suggestion I have to offer through your widely circulating and influential columns took its origin. A foreign gentleman was engaged in a fierce pantomimic contest with a member of the police force. The foreigner sought, with the most painful eagerness, to extract some particular information from the municipal mute, who could make no response to or even understand a syllable of what was being said to him. Nods, shrugs, and rapid jabbering were of no avail: frequent reference by the foreigner to a street map was equally futile. The policeman was completely at a loss how to enlighten his questioner, or even to tell him that he could not supply the required information. I have frequently seen a puzzled Frenchman or German consulting a map at the corner of a street, who, after half an hour's microscopic researches, has turned about with the most bewildered air, evidently as much at a loss what course to steer as before his investigation.

Now, sir, I think all this might be obviated if we had, stationed at the Bank, the National Gallery, Somerset-house, and, in fact, at all our public buildings, a policeman who had at least one language besides his own at his tongue's end. The language should, as a matter of course, be French, as being the one most generally understood by our Continental visitors. That "the force" are capable of linguistic attainments to the extent I ask has been proved by a sergeant of police having attended some French debating clubs, and reporting their proceedings, during a recent notorious trial, in a very efficient manner.

My suggestion does not demand that every policeman should be set to the study of Ollendorff's Grammar forthwith. The purpose would, I surmise, be perfectly fulfilled if merely a select few of the force were to become linguists to the extent of a conversational knowledge of the French language. All that is wanted is, that a man capable of communicating some few simple directions as to route, &c. in French should constantly be found at the portals of all our great buildings, and, as the policeman is always stationed there, I have to suggest that he be utilized for the purpose.

Sir Richard Mayne would thus also be enabled to hold out an additional inducement for the entrance of a superior

class of men into his brigades, and another class of advancement and larger salary would be created for an order whose emoluments, considering the nature and amount of work they perform, are at present sufficiently scant.

R. RADCLIFFE POND.

PREMIUMS AWARDED BY INSTITUTION OF CIVIL ENGINEERS.

THE council of the Institution of Civil Engineers have awarded the following premiums for papers read during the session recently concluded:—

1. A Telford Medal to M. Scott, for his paper "Description of a Breakwater at the Port of Blyth, and of Improvements in Breakwaters, applicable to Harbours of Refuge."
2. A Telford Medal to R. Mallet, for his paper "On the Co-efficients of Elasticity, and of Rupture in Wrought Iron, in relation to the Volume of the Metallic Mass, its Metallurgic Treatment, and the Axial Direction of its constituent Crystals."
3. A Telford Medal to H. Bessemer, for his paper "On the Manufacture of Malleable Iron and Steel."
4. A Telford Medal, and the Manby Premium in Books, to W. J. Kingsbury, for his paper "Description of the Entrance, Entrance-lock, and Jetty Walls of the Victoria (London) Docks; with Remarks on the Form adopted in the Construction of the Wrought-iron Gates and Caisson."
5. A Watt Medal to J. W. Jameson, for his paper "On the Performances of the Screw Steam-ship 'Sahel,' fitted with Du Tremblay's Combined Vapour Engine, and of the sister Ship 'Oasis,' with Steam-engines worked expansively, and provided with partial surface Condensation."
6. A Council Premium of Books to T. S. Isaac, for his paper "On the Successful Working, by Locomotive Power, over Gradients of 1 in 17, and Curves of 300 feet radius, on Inclines in America."
7. A Council Premium of Books to M. B. Jackson, for his paper "Description of the Gravitation Water Works at Melbourne, South Australia."

RECENT PATENTS CONNECTED WITH BUILDING.*

BRIDGES.—*M. Renney*, Dublin. Dated December 22nd, 1858.—The improvements, as applied to road traffic bridges, are effected by constructing the roadway or the longitudinal framing of the bridge as a double incline platform. The platform is mounted upon bearing rollers, which, if the bridge were free to rise and fall, would enable it to do so, it being balanced thereon: thus, upon withdrawing the bridge, or moving it backward and forward, the power required is chiefly that which is alone necessary to overcome the friction of the rollers with their load running over the rails.

FORGE HAMMERS, AND THE ANVILS USED WITH FORGE HAMMERS AND SQUEEZERS.—*W. H. Dawes*, West Bromwich. Dated November 23rd, 1858.—The patentee makes a series of channels or passages in the tools of the said hammers and anvils, the said channels or passages being made by preference in a plane parallel to that of the working surface, and as near that surface as they can be conveniently made. By causing water to circulate through the said passages or channels, the forge hammer and anvils are kept cool during use, and preserved from the injurious action of heat.

STOVES AND FIRE-PLACES.—*J. Jobson*, Derby. Dated December 6th, 1858.—This invention relates particularly to connecting together the cast-iron plates and other cast parts of stoves and fire-places. The patentee casts one plate or piece with a boss or projection of triangular or other form, and tapering or smaller at the top than at the base. He casts the other piece, which is to be connected to it, with a hole or cavity of corresponding form to the boss, so that when placed over the boss the two pieces are in their proper relative position, and the boss passes nearly, but not quite, through the other piece. A wrought-iron screw is placed in the mould when the boss is cast, and thus becomes fixed in the boss; or it may be afterwards tapped into the boss. A washer is placed over the screw when the two pieces of metal are placed together, and a nut is screwed upon it, and the pieces are thus securely and accurately united without the necessity of filing or other fitting.

MACHINERY FOR PREPARING FOR MANUFACTURE, AND FOR MANUFACTURING, CLAY AND OTHER PLASTIC EARTHS INTO BRICKS, TILES, PIPES, &c.—*J. Eccles*, Blackburn. Dated December 9th, 1858.—The object of the first part of this invention is to prepare clay and other plastic earths direct from the bed ready to be moulded by machines acting on the principle of those known as dry clay machines, in which system of manufacturing articles of clay or other plastic earths the process of tempering or pugging the materials is unnecessary. These improvements consist in drying the clay earths by currents of hot or cold air produced by mechanical means, in combination with arrangements of mechanism described. The second part of the improvements relates to machines or apparatus, which mould or form articles by expressing plastic earths through moulding orifices, and consists in an improved method of securing the moulding cores (especially when a number of such are employed), so as to keep them more correctly in their places. This is accomplished by a stay or stays in addition to the usual means of securing the cores.

FASTENINGS FOR WINDOW SASHES AND CASEMENTS, AND CHAINS USED IN SUSPENDING WINDOW SASHES. — *J. Young*, Wolverhampton. Dated 20th November, 1858.—This invention consists, firstly, in applying locking mechanism of the kinds described in the patentee's drawings to window sashes and casements, so that the said fastenings cannot be acted upon so as to permit of the unfastening of the sashes or casements without the use of a key; and also the sash and casement fastenings without locking mechanism. Secondly, in making chains used for suspending window-sashes of alternate cast single links, and wrought or stamped double links, the said links being joined together by pins in the usual way.

* From the *Engineer*.

Correspondence.

THE NINE-HOURS MOVEMENT.

SIR,—I again thank Messrs. Grey, Brown, Freeman, Facey, and Potter for their second reply to my letters; for, if the former one by its tone bore the evidence of conscious weakness, the last bears that of conscious defeat in argument. I pass by the impertinent allusions to myself. These can never affect me when I consider the righteous motives which have induced me to enter upon the question, and which are to endeavour to release the honest, upright workman and operative from the slavery in which he is held by these Unions. I shall satisfy myself on this point by quoting from a celebrated speech of the Frenchman, Barbes, who, only two months previously, had been released from his political prison, where he had been ten years, and to which he was soon, poor fellow, to go back. With a calm and impressive tone, he addressed the crowd and said:—"Citizens! Questions of political economy affect the sacred rights of the workman, the legitimate rights of the capitalist, and the respectable rights of genius and progress. As they raise conflicting questions of manual and mechanical labour, it appears to me that these are so vast and complicated that I respect those who study them seriously and honestly. Threats, violence, and insult can only retard the solution we desire. No one of us can say he can do without advice. Let us then hear with patience every frank expression of honest opinion, seeking loyally the truth; and let us not abuse or threaten any one."

Allusion is made by them to a letter of 1856. I put myself in the position of an able, hardworking, high-minded operative, one of those noble fellows struggling against the tyranny of the Union, as so many are, and suffering; and I say, that rather than flock to the workhouse to get the bread of idleness, degradation, and abject destitution, would it not be better to gain, even were it only 3s. or 2s. a day, and with my dear wife and little ones to eat the bread of honest independence, rather than that of a pauper. It would be the bread of poverty and trial, but it would be sweeter to me and mine, and less degrading than that of the parish workhouse. Will Mr. Potter and his colleagues indorse a contrary sentiment? But, sir, the real question is not one of the mere nine-hours movement. The ultimate pretension of the unionists, and I say it advisedly, is eight hours a day, 6s. a day, and the half-holiday on Saturday; the liberty to banish from labour all who will not join the unions; compulsion on foremen to be unionists—foremen whom they will control, and who shall not dare to do justice to the employer, nor urge the mechanic to do more work than he likes.

Can trade go on with such dishonest restrictions, when capital, authority, and all order are to be under the control of such men as could pen the letter of last Saturday's *Builder*?

We will now proceed to a practical illustration of this principle of action. Two bricklayers of an eminent builder, who always has in his employ some hundreds of men, have been compelled, within the last week, to ask to be discharged: the labourers refuse to serve them with materials unless they join the Union. One poor fellow has been with his employer many years, has stood by him in many strikes, but under this threat, which throws him out of bread, he goes to the Union. Now it is to be observed, that there is a *black roll* kept of *all men* who have ever stood by their masters. The applicant will be allowed to join; but he must pay a fine of 5*l*.; 5s. down, and 5s. a-week. Do all pay the same fine down? No, no. Some pay 2*l*. 3*l*. 4*l*. or 5*l*. Why should he pay 5*l*.? Oh, there's a pound a time for every strike that the man has stood by his master. May not the poor fellow pay 3*l*. he cannot afford 5*l*.? No! it is the rule, and has been decided. He must pay his 5*l*. or he shall not gain his crust of bread within the reach of the Unionists!

Men attend the committee, and are thus addressed:—"Your foreman is not a Unionist. You must not work under him. Take our orders. Strike at eight o'clock to-morrow morning." And it is done. The poor fellows dare not act against orders. Some there are, however, who detest this tyranny, and declare they will die before they submit. The hounds of persecution are let loose. The committees know their power, and use it mercilessly.

The professed object of these unions is to aid the members in case of illness, or their families in the event of death. That is on the upper written surface; beneath is an unwritten conspiracy against all rule, guidance, capital. One has told me, in reply to my question, "What do you get by the union and your subscription?" "Nothing! When I attend the publichouse with the members, the trial seems to be who shall drink most beer. I never hear an improving word among them, nothing to teach me something useful in my trade."

Is there no remedy for this state of things. I seek to tear away the flimsy veil, with which the Unionists try to cover the fallacy of the Unions, and the tyranny with which they lord it over their fellow-workman, and grind from him his weekly pittance;—the constant perverseness with which these men seek to set class against class, and strive to make the operative the enemy of his employer, and thus destroy the honest kindly feeling which should exist between the builder and his men. I have proved the selfishness and not the *disinterestedness* of the movement; which is, to render all the workmen slaves of an irresponsible tribunal; irresponsible for their acts, irresponsible for the application of the vast funds of tens of thousands of pounds in their hands. I leave it to the English, John Bull, honest, independent feeling of the operative and mechanic, to cast off this grinding tyranny of the Vampire Union, and to think and act for himself as a freeman and not as a slave.

THOS. L. DONALDSON.

Miscellanea.

PHOTOGRAPHS OF OXFORD.—We have seen a series of photographs for the stereoscope of the principal buildings in Oxford, by Mr. Robert Hills, of that city, which deserve notice. These include the new Museum, the High-street, Christ Church College, Brasenose, St. Mary's porch, and many other points of interest.

THE ROYAL EXCHANGE.—The Gresham committee, in conjunction with the City corporation, have commissioned Mr. Sang to re-embellish the ambulatories in the quadrangle of the Royal Exchange in fresco, the mural decorations originally executed having disappeared.

THE TEMPLE OF NEPTUNE IN PÆSTUM.—Mr. G. Walker, of Heathcote-street, has published a chromo-lithographed view of the Temple of Neptune, at Pæstum, from a drawing made on the spot by the late Mr. D. R. Hill, architect. It is a pleasant specimen of chromo-lithography, but it is to be regretted that it was not founded on a better drawing, for the details are sadly inaccurate, and out of drawing.

COMMUNICATIONS BETWEEN RAILWAY GUARDS, PASSENGERS, AND DRIVERS.—A method of instantaneous communication between railway guards and passengers with the driver, has been patented by Mr. Christopher Batty, of Manchester. Mr. Batty's invention is to place in the weather-board, on each side of the engine and driver, a mirror or looking-glass, in which the whole of each side of the train will be reflected, and which, of course, will be accessible to either driver or stoker. Many engines have at present a weather-board, in which is inserted a piece of plain glass, through which the drivers and stokers can look a head with protection from the weather; and in such cases the mirror would be placed outside this plain glass, flush with the footboards of the carriages. The inventor has provided for its application by night.

WEST CLIFF TERRACE, RAMSGATE, KENT.—We are glad to learn from a correspondent that, acting on our suggestions for their sanitary improvement, the above delightfully situated residences have lately been put into a proper state in respect of drainage, under the superintendence of an architect from London. It may also be interesting to antiquarians to know, that in making the excavations for the works in what is locally termed the "Roman Trenches," some ancient coins and ornaments, supposed to have been in use by the Romans about A.D. 48, were found at the depth of 15 feet from the surface, in a high state of preservation, and are now in the possession of F. B. Windsor, Esq. on the premises, who would feel a pleasure in showing them to any gentleman taking an interest in such curiosities. The property belongs to the Right Hon. the Lord Mayor of London, under whose management it will, without doubt, become an important neighbourhood.

ASSOCIATION FOR IMPROVING THE DWELLINGS OF THE POOR.—A general meeting of the shareholders in this society was held on Thursday in last week, at the offices, in Coleman-street, London. From the report it appeared that 821*l*. 9s. 5d. have been received from the dwellings for families in Albert-street, Mile-end New Town, during the year ending 31st March, 1859, and deducting therefrom 522*l*. 7s. 7d. for expenses, there remains a profit of 399*l*. 1s. 10d. There have been four deaths out of an average population of 306. The sum of 1,084*l*. 10s. 10d. has been received from the tenants in Ingestre-buildings, New-street, Golden-square, and deducting therefrom 627*l*. 4s. 5d. for expenses, there remains a profit of 457*l*. 6s. 7d. Out of an average population of 323, at these buildings, there have been nine deaths. It appeared from the revenue account that the receipts for the year amounted to 3,031*l*. 1s. 10d. and the expenses to 768*l*. 5s. leaving a balance of 2,262*l*. 6s. 10d. The total cost of the properties belonging to the association was 88,603*l*. 14s. 11d. The capital received, including the balance of 2,262*l*. this year, was 94,163*l*. The report and balance-sheet were adopted, and a dividend of 2 per cent. declared.

APPARATUS FOR RAISING WATER.—Mr. Robert Nelson, of New York, proposes to obtain a vacuum by the ignition of heated hydrocarbon fluids, such as turpentine, naphtha, &c. The volatilised fluids are employed as steam, and the vacuum is then produced by the explosion of the said volatilised fluids.

PECKHAM MONASTERY.—On the 7th instant, the first stone of the Capuchin church at Peckham was laid. It is a large building, designed in the most simple style, and will cost, with the monastery, when completed, about 6,000*l.* Mr. Pugin is the architect. The contract is taken by Mr. Kelly, of Kingland.

STRIKES.—The Sunderland shipwrights have met and determined to carry on their strike. They will submit to no modification of their claim of 30s. per week. The South Shields shipwrights have also held a meeting, and they refuse to accept the offer made by the masters, viz. of an advance from 24s. to 27s. a week. They refuse to take less than 5s. a day. The extra hands sent from Sunderland, Shields, and other northern ports to Chatham Dockyard were paid off on Saturday, and they may shortly be expected at their homes.

BURSTING OF A RESERVOIR AT BORDEAUX.—News of a terrible accident has been received from Bordeaux. The central reservoir of the city, which was very full of water at the time, burst with such a tremendous noise that the inhabitants of the quarter believed at first that the St. Medard Powder Mills had blown up. In a few seconds, however, the torrent rushed in the direction of the Rue d'Ares and the Judaique, carrying with it the ruins of many houses, furniture, beds, men, women, and children. Three or four dead bodies had been found, and about a dozen people more or less seriously injured were in the hospitals.

UTILISING WASTE HEAT FROM SLAGS.—In iron and other manufactures large quantities of heat are carried off and wasted in the slags tapped from the blast and other furnaces. Mr. Hugh Lee Pattinson, of Stotes Hall, Newcastle-on-Tyne, has, therefore, patented an invention which consists in employing, by the aid of suitable apparatus, such waste heat in the heating of aëriform and other fluids. The hot slags should be caused to move through suitable channels; whilst the air, or other fluid, is contained in contiguous channels, and by preference caused to move in an opposite direction to that in which the slags move.

SUFFOLK INSTITUTE OF ARCHÆOLOGY.—The Suffolk Institute of Archæology, &c. had one of their re-unions on Tuesday before last, under the presidency of the Hon. and Rev. Lord Arthur Hervey, the president of the Institute. The place of meeting fixed for the commencement of the day's tour was Coldham Hall, the property of Sir Thomas Rokewode Gage, bart. of Hengrave Hall. The company thence proceeded to Stanningfield Church, a small building, but possessing several features of interest to the archæologist. All Saints' Church, Hartest, was the next place seen; and Boxted Hall, a brick mansion, surrounded by a moat. Mr. Weller Poley, Lord of the Manor, and his lady here invited the company to partake of luncheon. Between forty and fifty were present. On returning to the panelled hall of the mansion Lord Arthur Hervey took the chair, and read a paper on the history of Boxted Hall and of the family of Poley. Mr. Almack, the Suffolk antiquary, also read a paper on the arms in the windows of the hall. In consequence of the prolonged stay at Boxted Hall, it was suggested that the contemplated visit to the neighbouring church of Glemsford should not be undertaken, and the party separated.

FALL OF THE PRESTON RAILWAY STATION.—About twenty minutes to eleven o'clock on Monday forenoon, a luggage train to the north was passing through the Preston Railway Station, and upon one of the trucks was a large conical iron casting, which was being conveyed from Low Moor to Dumfries. The casting was 8 feet 6 inches in diameter, and 6 feet in length, and projected so much over the side of the waggon that in coming into the Preston station it struck one of the iron pillars by which the ponderous wooden roof is supported. This first pillar it only cracked, but it came more closely into collision with the next three pillars, and snapped them, causing a large portion of the roof to fall to the ground. The collision between the casting and the pillars broke the ropes by which the cylinder was lashed to the trucks, and the immense mass rolled off upon the wooden gangway between the lines of rail, and from thence to the rails on the west side of the station, smashing everything in its progress, the casting itself being cracked in two places by the fall.

LICENSED VICTUALLERS' ASYLUM.—At a meeting of the committee held on the 17th ultimo, Mr. M. C. W. Horne, of London and of Plymouth, was elected the architect for the erection of the buildings at Mutley.

SOUTH KENSINGTON MUSEUM.—During the week ending 9th July, the visitors have been,—On free days and evenings, 6,435; on the three students' days (admission to the public, 6d.), 888; one students' evening, Wednesday, 118; Thursday evening (Architectural Society *conversazione*), 1,500; total, 8,945.

DRAWINGS FOR THE NEW FOREIGN OFFICE.—In reply to a question by Mr. Tite, Mr. Fitzroy said that the working drawings might be inspected within ten days, but the estimates would not be received in less than three weeks. It was for the House to say whether the whole should be submitted for inspection at once or not.

HOLBORN-HILL.—A correspondent, "a saver of horse-flesh," suggests a stationary engine of considerable power at the top of Holborn-hill, to work an endless chain; any given link of which, say, starting from the pulley at the bottom of the hill, would be drawn to the top, pass over the working wheel, and descend the hill on the other side. To prevent the contact of the sides of the vehicles, he continues, it would be necessary to have rollers placed in a frame along the chain, against which the sides would run.

THE BOSTON SURVEYORSHIP. — The Local Government Board proceeded last week to elect a surveyor. The candidates were examined by Mr. Rawlinson, C.E. who had been sent down by the Central Board of Health, at the request of the Local Board. The following were the candidates: Wm. Howden, jun. engineer, Boston; Wm. Henry Wheeler, surveyor, Boston; Thomas Milburn, engineer and surveyor, London; J. W. Harrison, civil engineer and architect, Hunslet, near Leeds; Wm. Roe, architect, Boston; Richard Warburton, architect, Drinkenfield; Frederick Utting, engineer, Peterborough; and John Wain, architect, Boston. Mr. Wheeler was ultimately appointed to the office. The appointment, if we may judge from several letters we have received, has not given entire satisfaction.

THE SOUTH-EASTERN RAILWAY COMPANY AND PAROCHIAL RATING.—The appeal of the South-Eastern Railway Company against the poor-rate of the parish of Battle, which was adjourned from the Easter Session at Lewes, again came before the court, on the 28th and 29th ult. when the railway company entered into an arrangement to be binding for five years to pay upon an assessment of 150*l.* a mile for the line and of 80*l.* for the station, the company paying 90*l.* costs to the parish. This is the sixth consecutive rate against which the company have appealed. The assessment in all but the last was on 276*l.*, being at 80*l.* a mile for the line, and 51*l.* for the station. The appeals against the four first were quashed, and the company ordered to pay 240*l.* costs to the parish. The fifth rate was quashed by consent on technical grounds, the parish paying 100*l.* costs to the company. The assessment of the railway was then raised to 350*l.* The result of these several appeals, as we understand, is, that the assessment of the railway company is as a compromise increased by consent from 276*l.* to 500*l.*

THE THAMES AND THE LIFFEY.—Sir: If the venerable aqueous monarch on whose back the modern Babylon rests is deporting himself in a manner at this season not very palatable to the nasal organs of his subjects, his fair cousin "Anna Liffey" seems to be afflicted with the family complaint; for we Dubliners, who either inhabit the vicinity of our admittedly handsome line of quays, or whose avocations lead us on an occasional marine trip from ferry to ferry, have our olfactory nerves literally assailed with an overwhelming noxious effluvia. The local corporation—to do a naturally sluggish body justice—has been improving the sewers of the city, which are all, or nearly so, emptied into the Liffey; but the more new sewers are constructed the worse the river is becoming, and the *general* evil thereby engendered counterbalances the *partial* sought to be remedied. We begin already *to talk* of "purification," but as we talk here very much and very long before we *do* anything in the way of improvement, I suppose we must only put up with the annoyance until official eyes are opened with statistical results of spreading fever, &c. &c. In conclusion, I must hope that the wherewith to drink furnished by the new "Monumental Slab" on Carlisle-bridge (as noticed in the *Builder* of 9th inst.), and erected on "*the margin of fair Liffey's water* is not derived from the "limpid stream" below.—LYNX.

EDINBURGH.—The church in Lauriston-place, for the United Presbyterians, has just been completed at a cost of about 5,000*l.*

DECIMAL COINAGE.—The Report of the Decimal Coinage Commissioners has been issued. In the opinion of the commissioners it is better to put up with the inconveniences of "established habits," with regard to the coinage, than to attempt to remedy the evil by any partial introduction of a new principle.

NEW BATHS AND LAUNDRIES AT MANCHESTER.—The Manchester and Salford Baths and Laundries Company, encouraged by the success of their establishments in Greengate, Salford, and Mayfield, Manchester, have begun a third building for Hulme. The site is close to Stretford New Road. Mr. T. Worthington is the architect. The Hulme Baths, according to the *Courier*, will be larger and more complete than any of the other establishments. The principal front of the building, which will be to Leaf-street, will be Veronese or Lombardic in style; the façade being 114 feet long, and the depth of the building about 117 feet 6 inches. The front will be of two stories, with an attic storey added in the centre, to form the dwelling-rooms of the superintendent; and the materials will be brick, Halifax stone, and red tile. Mr. R. Neill, of Strangeways, has contracted to finish his part of the work by May next. The cost of the building will be about 11,000*l.*

HOLYROOD PALACE.—The works here are being expedited. Within the last few years very extensive improvements have been made in the external aspect of Holyrood. Formerly surrounded with small houses and gardens, and almost inaccessible either from the town or the park, it now stands in the midst of a somewhat spacious and neatly-enclosed garden, and a carriage-drive of ample breadth has been formed all along its front, communicating on the one side with the New Town, in the centre with the Old Town, by way of Canongate, and on the other extreme with the Queen's drive, the royal parks, and the hills of Arthur's Seat. Among the still more recent improvements carried out are the renovation of the ancient mansion of Croft-an-rig, situated in the north-east corner of the palace gardens; the erection of lodges at Holyrood, Parson's-green, and St. Leonard's, the outlets of the park; and fountain "taken" from that in the courtyard of the ruinous palace of Linlithgow. The figures on it, which are sixteen in number, are from 18 to 20 inches in height. The work is under the superintendence of Mr. Matheson, of the Board of Works.

FREEDOM OF LABOUR.—When a trade exists, there must be a certain number of men engaged in manufacturing the articles in that trade. When the trade expands by reason of the increased demand for the articles manufactured in it, then there will be an increased demand for labour. If the labour supply be insufficient, then wages will naturally be higher; but if the supply of labour be plentiful, then the rate of wages will be regulated by the amount of competition; and this competition will naturally be regulated by the number of unemployed individuals. The smaller the number of the unemployed, the less will be the competition, and as a natural consequence the wages will be higher. It is, therefore, of the utmost importance to the people that work should be found for as many persons as possible. If a combination strive to restrict the supply by artificial means, it will certainly fail, either by preventing the employer competing with articles made in places where labour is cheaper; or by causing machinery to be introduced to supply the deficiency of labour; or by compelling the employer to remove to a place where labour is cheap, plentiful, and unrestricted. Every attempt artificially to restrict trade is unjust to the workman. I have a perfect right to work for whom, what, and how I like, providing that such labour is legal, and no person or persons have any right to dictate to me what trade I shall follow, or on what terms I shall enter that trade. All trades ought to be perfectly free to every person who can master the details requisite to make a workman. Some individuals have a natural aptitude for certain trades, and therefore do not require the same amount of instruction as those of a less intelligent mind. Nor does the mere fact of a man having been an apprentice guarantee that he will be a good workman at the trade to which he was apprenticed; therefore, if I possess a natural talent which enables me to learn that trade without serving an apprenticeship, no person has a right to compel me to do so. I may learn any trade I like, whether as an apprentice or not.—*John Plummer's Defence of the Rights of Industry.*

PATENT HYDRAULIC PURCHASE MACHINE FOR CRONSTADT DOCKS.—Under the directions of the Russian Government, a great slip dock is being constructed at the port of Cronstadt, and for this dock Messrs. More and Son, engineers, Glasgow, have just completed one of those immense hydraulic purchase-machines which, invented about eight or ten years ago, are now to be found in various quarters of the globe. The slip, which is now in course of erection at Cronstadt has an incline of 1 in 32, and the hydraulic machine, which is to be used in drawing vessels up the slip, is capable of overcoming a force of 3,000 tons of dead weight. It has been despatched to Granton, thence to be shipped to Russia.

HEXHAM.—The first burial has just taken place in the new cemetery at Hexham. The ground is situated about one mile west of the town, upon the Hexham and Carlisle road. The buildings consist of two chapels, each with a spire and porch, with offices and a cottage for superintendent, combined with an entrance gateway. The ground contains about three acres, and is laid out and planted, and enclosed with a wall and railing. The whole has been carried out from the design and under the superintendence of Mr. Archibald M'Dunn, of Newcastle, architect.

TENDERS.

For three houses and outbuildings, at Lewisham-road, Kent. Mr. John Blyth, architect. Quantities supplied by Mr. Walter Crook:—

Macey	£2,195	0	0
Crook and Son	2,195	0	0
Penny	2,178	0	0
Gadsby	2,080	0	0
Taylor	2,020	0	0
Cannon	2,000	0	0
Thompson	1,980	0	0
Marsland	1,965	0	0
Wallbutton	1,944	0	0
Ring and Stanger (accepted)	1,887	0	0

For house, Long-lane, Smithfield. Mr. John Blyth, architect. Quantities supplied by Mr. W. U. Crook:—

Brown and Robinson	£1,470	0	0
Brake	1,460	0	0
Ashby and Son	1,459	0	0
Mansfield and Son	1,450	0	0
Gadsby	1,447	0	0
Brass and Son	1,379	0	0
Fox	1,320	0	0
Crook and Son	1,297	0	0
Macey	1,296	0	0
Palmer and Son	1,258	0	0
Ring and Stanger (accepted)	1,240	0	0

For new police station, Loughborough. Messrs. Bellamy and Hardy, architects. Quantities supplied:—

Young, Lincoln	£2,275	0	0
Barker, Loughborough	2,242	0	0
Linley and Co. Leicester	2,163	0	0
Harding, Loughborough	2,078	0	0
Pepper and Co. Spalding	1,980	0	0

Each estimate includes the fitting of court, &c.

For buildings and laying out ground, cemetery works, Oakham:—

R. Young, Lincoln (accepted)	2,598	0	0

For the erection of a detached residence, on the new road, Buckhurst-hill, Essex, for Mr. Wm. Strode. Mr. J. H. Rowley, architect:—

Ring and Stanger	£915	0	0
Miles	820	0	0
Davey	800	0	0
Rivett	798	0	0
Carter	727	0	0
Childs	700	0	0
Burrowes	594	0	0

For the levelling and fencing to the same building:—

Ring and Stanger	£198	0	0
Davey	153	0	0
Burrowes	144	0	0
Rivett	135	0	0
Miles	85	0	0
Childs	75	0	0
Carter	45	0	0

For re-building the "Horse and Groom" Tavern, Great Portland-street, destroyed by fire. Mr. Josiah Houle, architect:—

		Allow for old materials.
Greig	£2,027	£50
Thomas	1,984	30
Carr	1,500	60
Cinder	1,834	34
Purkiss	1,734	65
Couland	1,447	130

For new school and residence, at Emneth, near Wisbech. Mr. William Smith, New Adelphi Chambers, architect:—

Hutchinson, March	£598	0	0
J. Stimpson, Lynn	595	0	0
R. Batterham, Wisbech	589	0	0
C. Clare, Watlington	487	0	0
W. H. Naylor, Wisbech (accepted)	484	0	0
J. Matthews, Parson Drove	476	0	0

For alterations and additions to Mr. R. Burgess's public-house, Albert-terrace, Porchester-square, Paddington. Mr. P. Wilkinson, architect. Quantities supplied:—

Patrick and Son	£845	0	0
R. Laurence and Son	829	0	0
Axford and Co.	810	0	0
Turner and Sons	796	0	0
Langrove and Burge	685	0	0

For alterations and additions, Chester House, Northamptonshire. Mr. Joseph Peacock, architect:—

Allen	£1,974	7	0
Boddington	1,969	0	0

For erecting a new rectory-house and offices, at Laindon-cum-Basildon, for the Rev. Dr. Colls, D.D. Messrs. Waring and Blake, architects. Quantities supplied:—

Trolloppe, London	£2,169	0	0
Keys and Head, ditto	2,158	0	0
E. Taylor, Lewisham	2,120	0	0
Gammon, London	2,037	0	0
Naylor, Rochester	1,892	0	0

TO CORRESPONDENTS.

Mr. Liddell (a letter is waiting at 1, York-street.)—H. C.—W. D. M. (not new).—Traveller.—W. S.—W. F. P.—S.—Saver of Horseflesh.—G. P.—A. B. and Co.—W. H.—J. J. L. (not desired).—R. W.—B. and H. J. H.—W. S.—Mr. S.—A Bricklayer.—A Builder.—A London Builder (anonymous letters on the Nine-Hours Movement will not receive attention).—P. T. (we do not insert letters addressed to other persons). A Builder (responsibility rests somewhere: it would be determined by the *terms* of the contract).—C. A. W.—J. C. S.—B. C.—B. A.—J. D.—J. S.

Post-office Orders and Remittances should be made payable to Mr. Morris R. Coleman.

☞ *NOTICE.—All Communications respecting Advertisements, Subscriptions, &c. should be addressed to "The Publisher of the Builder," No. 1, York-street, Covent-garden. All other Communications should be addressed to the "Editor," and* NOT *to the "Publisher."*

ADVERTISEMENTS.

UPPER HOLLOWAY.—Valuable Freehold Building Land.

MESSRS. BEADEL and SONS are instructed to offer for SALE by AUCTION, at the MART, Bartholomew-lane, London, on TUESDAY, the 16th of AUGUST, 1859, at TWELVE for ONE o'clock, in lots, several valuable and desirable plots of FREEHOLD BUILDING LAND, delightfully situate near St. John's-park Building Estate, and fronting the Junction-road leading from Highgate-archway to Kentish-town, and near to the Archway Tavern. Each Plot, as staked on the ground, is suitable for the erection of Villas or semi-detached Houses. This neighbourhood has been and is rapidly improving, and the recently erected villa residences afford ample proof of the value of the land. The position of this Estate is desirable and healthy, being very elevated, and commanding extensive views; its proximity to the West-end, and the constant communication with the City by omnibus, render it extremely valuable, either for occupation or as a safe investment.—Particulars and conditions of sale, with lithographic plans, may be obtained of Mr. CHADWICK, Solicitor, 17A, Size-lane, Bucklersbury; at the Auction Mart; and of Messrs. BEADEL and SONS, 25, Gresham-street, E.C.

Now on view, valuable Stock of Chimneypieces, beautifully designed, in the finest foreign marbles, also many Figures, Groups, and Busts, and a variety of useful and ornamental objects sculptured in marble, and forming a portion of the remaining stock of Messrs. Browne and Co. at their Ateliers, in Grafton-street, near the London University.

MESSRS. RUSHWORTH and JARVIS are directed by Messrs. Browne and Co. to SELL by AUCTION, on the PREMISES, on TUESDAY, JULY 19, and following day, their valuable STOCK of MARBLE CHIMNEYPIECES, many of which are sculptured in high relief, and suitable for noblemen's mansions and public edifices, and others adapted for gentlemen's residences, in pure statuary and rich coloured marbles. The works of art include many beautiful statues, statuettes, busts, and urns, monuments, pedestals, candelabra, two pairs of grand lions, and other items of interest suitable for the decoration of saloons, halls, terraces, gardens, and pleasure-grounds.—Catalogues may now be had on the Premises; and of Messrs. RUSHWORTH and JARVIS, Saville-row, Regent-street, and 19, Change-alley, Cornhill.

HAMMERSMITH.—TO BUILDERS AND OTHERS.

MR. C. FURBER will SELL by AUCTION about 70,000 STOCK and PLACE BRICKS, and a quantity of BURRS, on MONDAY, JULY 18, at TWELVE for ONE, on the GROUND, opposite the Thatched House Tavern, Albion-road, Hammersmith.—May be viewed. Catalogues at the Auction Offices, Warwick-court, Gray's-inn.

IN BANKRUPTCY.—155, Tooley-street, Bursar-street, and College-street, Southwark.—To Engineers, Wheelwrights, Builders, and Others.—LEASE, PLANT, and STOCK.

MR. PEAKE is directed by the Assignees of Robert Parker to SELL by AUCTION, on the PREMISES, on TUESDAY, JULY 19, 1859, at TWELVE, rod, bar, and half-round IRON, steel, iron hooping, double-purchase crab, ash plank, felloes, 500 planks, deals and battens; vans, carts; two powerful cart-horses; one cob; capital sugar-truck. Also, in one lot, the LEASE of the PREMISES, with the Plant, Blacksmith's Forges, &c. View, day previous and morning of sale. Catalogues of H. H. STANSFELD, Esq. Official Assignee, 10, Basinghall-street; of Mr. JOHN BUTLER, Solicitor, 191, Tooley-street; and at Mr. PEAKE'S Offices, 44, Tooley-street, Southwark.

RAOENSBOURNE PARK, Catford-hill, Lewisham.—To BUILDERS and OTHERS.—About Two Acres of extremely valuable Freehold Building Land, having nearly 700 feet frontage, and Two Plots of very choice Land near thereto, commanding extensive and beautiful views, and only five minutes' walk from the station on the Mid-Kent Railway, terminating at London-bridge.

MESSRS. DICKSON and DAVENPORT will LET by AUCTION, on Building Leases for 99 years, at the MART, on WEDNESDAY, the 10th of AUGUST, at TWELVE o'clock, in various lots, about TWO ACRES of very choice BUILDING LAND, delightfully situated on the summit of the Park, from which a beautiful panoramic view is obtained, including the Crystal Palace, Knockholt Beeches, and St. Paul's, admirably adapted for the erection of first-class villas, for which there is a great demand in this favourite locality. The Park is studded with several family mansions and villas, is agreeably situated just out of the high road from Blackheath and Lewisham to Sydenham, the Crystal Palace, and Croydon, and is within twenty minutes' ride, per Mid-Kent Railway, to London-bridge, which will shortly be extended to Charing-cross, presenting unrivalled advantages for building operations. Also, TWO very choice PLOTS of LAND near to the preceding. The usual amount will be advanced to builders, if required.—May be viewed prior to sale. Particulars and plans at the Plough, Lewisham; Greyhound, Greenwich, Sydenham, and Croydon; Dartmouth Arms, Forest-hill; of Messrs. DIMMOCK and BURBEY, Solicitors, 2, Suffolk-lane, Cannon-street, E.C.; of Mr. DAVENPORT, Ravensbourne Park, S.E; and of Messrs. DICKSON and DAVENPORT, Estate Agents and Auctioneers, 32, Bucklersbury, City, E.C.

ESTATE SALE on AUGUST 18th, 1859.

MR. LEREW begs to inform Builders, his friends, and others, that his NEXT SALE of HOUSES is appointed to take place at the AUCTION MART, City, on THURSDAY, AUGUST 18th. Parts of Property to be included, are requested to be forwarded fourteen days prior to that date. In the event of no sale being effected, a fix d moderate charge will only be made.—Auction and Estate Offices, established 1843, Cardington-street, Hampstead-road, near the Euston Station.

TO TIMBER MERCHANTS, BUILDERS, CARPENTERS, AND OTHERS.

MR. LEREW will SELL by AUCTION, on the PREMISES, No. 42, Union-street, Somers-town, on MONDAY, JULY 18, at TWELVE for ONE o'clock, 1,800 planks, deals, and battens; 170 squares of 1¼in. 1in. ¾in. and ⅞in. prepared flooring; 10,000 feet dry wide pine board; 8,000 feet of scantling, scaffold-poles, and ladders, a few doors, large quantity of dry cut stuff, &c.—May be viewed the Saturday prior and morning of sale, and catalogues had, Auction Offices, Cardington-street, Hampstead-road, near the Euston Station.

VAUXHALL.—Valuable Copyhold Property, producing about 750*l.* per annum.

MESSRS. WINSTANLEY are instructed by the Trustees, under the will of Sir Robert Burnett, deceased, to OFFER by AUCTION, at the MART, on WEDNESDAY, 27th of JULY, in 18 lots, desirable BUSINESS PREMISES, Public-house, and numerous Dwelling-houses, comprising a wheelwright's shop, yard, and workshops, dwelling-house adjoining, and also the veterinary shoeing forge, and premises, situate in Vauxhall-walk, and in the occupations of Mr. Wayman and Mr. Moss, a large plot of ground in the rear, extending to Glasshouse-street, forming a portion of the premises of Mr. William Northen, stone-potter; also fifteen dwelling-houses, forming the whole of Vauxhall-terrace, the Black Dog public-house, and four messuages in Gloucester-place, five cottages in Glasshouse-court, and thirteen houses in Glasshouse-street, being 5 to 17. The whole let to yearly and weekly tenants, and producing about 750*l.* per annum. The property is copyhold of the manor of Kenevington, part of the possessions of the Duchy of Cornwall.—To be viewed by permission of the respective tenants fourteen days previous to the sale, when printed particulars with plans may be obtained of Messrs. FARRER, OUVRY, and FARRER, Solicitors, 66, Lincoln's-inn-Fields, W.C.; at the Mart; the Black Dog, Gloucester-place, Vauxhall; and of Messrs. WINSTANLEY, 10, Paternoster-row, E.C.

TO BUILDERS, &c.

MR. EDWIN WHITE will SELL by AUCTION, at his ROOMS, 12, Holborn Bars, opposite Furnival's Inn, on TUESDAY, JULY 19th, at TWO precisely, about 7,000 PIECES of very superior PAPER-HANGINGS, and upwards of 120 well-made veined MARBLE CHIMNEY-PIECES.—View and catalogues day prior.

PLAISTOW, NEAR THE VICTORIA DOCKS.—Important Sale of valuable Freehold Building Ground, by order of the Trustees of the late Mr. T. E. Bradley.

MR. JOHN M. DEAN will SELL by AUCTION, at the VICTORIA TAVERN, near the Barking-road Railway Station, on TUESDAY, JULY 26, at TWO, in Lots, 53 Plots of most eligible FREEHOLD BUILDING GROUND, free from land-tax, situate in Forty Acre-lane, near the Barking-road, close to the Victoria Docks, the Thames Iron Works, and other large manufactories.—Particulars, with plans, may be had at the place of sale; of Messrs. CHAMPION and JUTSUM, Solicitors, 71, Whitechapel-road; and of the Auctioneer, Ham-lane, Stratford, E.

FOR SALE by PUBLIC AUCTION, in the SALE-ROOM, at F. K. BARNES and SONS' TIMBER-YARD, Canons'-marsh, Bristol, on WEDNESDAY, the 20th of JULY, 1859, at ONE o'clock precisely. (Luncheon at Half-past Twelve.)

For Account of Importers.

30,000 Spruce Deals, Battens, and Boards (new importation)
3,000 Quebec Pine Deals
1,000 St. Petersburgh Red Deals
1,000 Onega Red Deals
1,000 Swedish Red Deals (new importation)
2,000 Ditto (Dry Deals)
60 Loads Large Curly Quebec Birch.
500 Loads Quebec Yellow Pine Timber
250 Loads Dantzic Timber.
100 Loads Dantzic Oak.
50 Loads Pitch Pine Timber.
450 Loads Swedish Timber (new importation).
30 Fathoms Hemlock Lathwood.
60 Teak Plank.
2,500 Quebec Pipe Staves.
7,000 W. I. Puncheon ditto.
200 Norway Masts.
1,000 4 to 6 inch Spars.
200 4 inch ditto
100 Rickers.
Prepared Flooring.
With other Goods.

Catalogues will be issued on the week of sale.

F. K. BARNES and SONS, Brokers.

Canons' Marsh, Bristol, July 7th, 1859.

ST. FAITH'S HOUSE ESTATE, AND ADJOINING PROPERTY, MAIDSTONE.

MR. TOOTELL is directed to SELL by AUCTION, at the Bell Inn, Maidstone, on WEDNESDAY, AUGUST 3rd, 1859, that valuable FREEHOLD ESTATE, known as St. Faith's, comprising about four acres of Garden Ground, situate nearly in the centre of the town, with approaches to the principal streets, and offering sites most eligible for building purposes. The land is inclosed by walls, is planted with fruit-trees, and from its peculiarly desirable shape (being about 500 feet long and 330 feet wide), is suggested the opportunity of forming a spacious square, with area for fifty or sixty second-class houses, in a healthy and good situation with good fall for drainage, a southern aspect, and with other requisites that render land so situate highly valuable for building. Also, TEN HOUSES and COTTAGES adjoining, with stables and out-buildings, timber-yard, &c. abutting to Week-street, St. Faith's-green, and the Chillington-house property.—To be seen by applying to JAMES COULTER, who occupies the garden-ground. Particulars and conditions of sale and plans will shortly be published, and may be had at the offices of Messrs. BEALE and HOAR, Solicitors, Maidstone; at the Inns in the neighbourhood; and of Mr. TOOTELL, Land Agent and Valuer, Maidstone.

GENERAL BUILDER'S STOCK, for SALE by AUCTION, at the Builders' Sale-grounds, 23 and 24, Marylebone-road, Regent's-park, W. London.

MESSRS. BOOTH and CO. will SELL, on TUESDAY next, at ONE for TWO o'clock, without reserve, a large and general STOCK, removed for convenience of sale; comprising poles, ladders, planks, deals, flooring, black paint, drain-pipes, machines, tools, files, iron goods, joinery, old materials, fittings, &c. &c.—On view Monday and morning of sale; catalogues on the Premises; and at City Office, 13, Eastcheap, E.C.; or by post, with "Builder's Salesman," for one stamp.

SEVENTY-ONE principally large peeled OAK TIMBER TREES and POLLARDS, TO BE SOLD BY AUCTION, by

MR. C. PRYOR, at the KING'S ARMS INN, Waltham Abbey, on TUESDAY, 26th JULY, at ONE o'clock. The trees are mostly of very large dimensions, are felled, and lying numbered with paint in various parts of the Warlies Park Estate, within an easy distance of the Navigable River Lea and Waltham Railway Station; also the TOPWOOD, and 1,300 FAGOTS. May be viewed on application to Mr. SQUIRES, at the Park, of whom catalogues may be had; and of the Auctioneer, 18, Smithfield-bars, St. John-street, and at Waltham Abbey.

WANTED, "THE BUILDER" for JANUARY 15, and MARCH 19, 1859.—Apply at the Office.

MR. WILLIAM ELLISON,
CONSULTING SURVEYOR, of STAINSBY-ROAD, E.
Has taken Offices at
13, FENCHURCH-BUILDINGS, FENCHURCH-STREET, E.C.
Where he continues to advise BUILDERS
On BREACHES of CONTRACT, DISPUTED ACCOUNTS, &c.

TO ARCHITECTS, ENGINEERS, BUILDERS, SURVEYORS, &c.—COMPETITION Working and Detail Drawings, Maps, Plans, Tracings, Quantities, Surveys, and Professional Aid generally, by Mr. R. BLESSLEY, 8, Furnival's-inn, Holborn. PERSPECTIVES outlined, etched, or coloured by the first artists in London.

TO ARCHITECTS.—PERSPECTIVES, in Outline and Coloured, for Competitions, &c.; also ARCHITECTURAL DRAWINGS finished from rough sketches; by Mr. G. H TAIT, 3, Conduit-street, Regent-street.

GOOD GOTHIC STONE CARVERS WANTED immediately.—Apply to E. E. GEFLOWSKI, New Catholic Church, Lancaster.

NORFOLK.—ELECTION of a COUNTY SURVEYOR.—Notice is hereby given, that at the next General Quarter Session of the Peace for the County of Norfolk, to be held in the Shirehouse at Norwich Castle, on THURSDAY, the 20th day of OCTOBER next: the Justices then and there assembled will proceed to the ELECTION and APPOINTMENT of a SURVEYOR for the said County, the office having been materially modified in its duties and emoluments, and becoming vacant on that day. The salary will be 300*l.* per annum, payable quarterly. The Surveyor will be required to live in Norfolk or Norwich. He must be a professional man, wholly unconnected with trade; and will not be restricted from private practice.—Full particulars of the duties of the office will be furnished by the Clerk of the Peace on application to him, personally or by letter; and the testimonials of Candidates (originals) are to be delivered or sent to him on or before SATURDAY, the 1st OCTOBER.

R. W. PARMETER, Clerk of the Peace.

Aylsham, 12th July, 1859.

TO SURVEYORS.—The Town Council of the Borough of Dorchester are desirous to PROCURE a FIT PERSON to discharge the general duties of SURVEYOR to the COUNCIL. He will be required to reside within the borough, and superintend the management of the corporate property, and, amongst other things, to devote himself to the carrying out of the private improvements for the drainage and water supply of the borough, under "the Public Health Act 1848," and be competent to design and record such improvements on the general plan of drainage and water supply as they proceed to execution and completion.—Applications to fill the office, stating qualifications and salary required, to be made in writing, and delivered at the Office of the Town Clerk in Dorchester, by TEN o'clock on the 1st AUGUST next.

Guildhall, Dorchester, 11th July, 1859.

WORKING FOREMAN OF SLATERS.

WANTED, in the neighbourhood of London, a sober, industrious, intelligent MAN, who is thoroughly master of SLAB WORK and ROOF SLATING in all its branches. The present Foreman has held his situation nine years.—Address, R. B. care of Mr. Gritten, 6, Bridge-street, Westminster.

TO MASONS, WALLERS, AND LABOURERS.

WANTED, immediately, at Welbeck Abbey, several good WORKMEN in these branches.—Apply at the Works to C. C. and A. DENNETT. N.B. There is no strike and steady men will meet with a regular job.

TO PLUMBERS, &c.

WANTED, *in a Builder's Yard in the* Country, a good PLUMBER, PAINTER, and GLAZIER.—Address, stating wages, qualifications, &c. to B. C. Post-office, Bishops Stortford.

THE BOARD OF WORKS FOR THE ST. GILES'S DISTRICT.
TO SURVEYORS' CLERKS AND OTHERS.

WANTED, by the above Board, a SURVEYOR'S CLERK, whose duties will be to take charge of and keep a set of books, such as are in general use in a Building Firm, as well as to keep an account of the men's time and materials, and to make himself generally useful in office business. Builders' Clerks, who understand such duties as those required by the Board, are likely to be the best fitted for the situation. Office hours from SIX o'clock a.m. to SIX o'clock p.m. but the whole of his time must be at the disposal of the Board, when required. Salary 80*l.* per annum, with apartments upon the premises, firing, and candle.—Applications to be addressed to the Surveyor at Offices of the Board, 199, Holborn, before TUESDAY, JULY 26th inst.

TO SHOP FOREMEN.

WANTED, as WORKING FOREMAN of CARPENTERS and JOINERS, a Practical Man thoroughly acquainted with the trade in all its branches, and competent to set out work. None need apply who have not filled a similar situation.—Address, stating age, wages, and reference, to A. B. Post-office, Wolverhampton.

WANTED, a steady, active WORKING FOREMAN in a Jobbing Shop.—Apply by letter to S. G. L. Mr. Hatchet, Moorgate-street, E.C.

TO TIMBER MERCHANTS AND BUILDERS.

WANTED, as FOREMAN, in a Timber Yard, an active, intelligent Young Man, who thoroughly understands the Buying and Selling and Cutting up of English and foreign timber. He will have to devote his whole time to the business, be time-keeper, and his character to bear the strictest investigation. — Apply to J. H. CATTLEY and SONS, Timber Merchants, York.

TO THE BUILDING TRADE.

WANTED, a PARTNER, or competent FOREMAN, in an established concern; and in consequence of the present increasing state of the locality, with the additional advantage of a luggage station now in construction near the premises, a very extensive home trade may be carried on. No one need apply who cannot give good and satisfactory references.—Apply to Mr. J. B. HARPER, Building Surveyor, Great Malvern.

WINDOW GLASS TRADE.

WANTED, a GLASS-CUTTER, one who has had some experience in a wholesale house, and understands packing and assorting; an acquaintance with colours, &c. would be a recommendation.—Apply, by letter, addressed W. G. T. at Mr. Gray's, 16, Crooked-lane, City.

WANTED, a SITUATION as BOOK- KEEPER or CASHIER, by a Young Man who has been in the Timber Trade. Unexceptionable references can be given, and security if required.—Address, C. E. D. Post-office, Gloucester.

WANTED, by a practical CLERK of WORKS, a RE-ENGAGEMENT, or as BUILDERS' FOREMAN. Good references from last employers. Locality no object.—Address, R. Z. 2, Newington-place, Kensington-road.

WANTED, by the Advertiser, aged 26, a SITUATION as CLERK in a BUILDER'S OFFICE or YARD. Address, A. L. Deacon's Reading-rooms, City.

TO PLUMBERS, &c.

WANTED, a SITUATION, by an experienced PLUMBER and GAS-ENGINEER, as WORKING FOREMAN, in town or country. Good reference.—Address, J. H. No. 55, Chandos-street, Covent-garden.

WANTED, a RE-ENGAGEMENT as CLERK of WORKS, by a thoroughly practical Man (a joiner by trade). Reference direct to the architect whom he is just leaving.—Address, G. M. B. 38, Upper John-street, Tottenham-court-road.

TO TIMBER MERCHANTS.

WANTED, a SITUATION, as CLERK or SALESMAN in a Timber-yard. Accustomed to the Retail Trade. Aged 30. Good references.—Address, W. CHAPMAN, 12, Harrington-street North, N.W.

WANTED, constant EMPLOYMENT as PAINTER and GLAZIER. Has no objection to assist in Plumbers' work. Wages no object. Town or country.—Address, S. C. 38, Cumberland-street, Marlborough-road, Chelsea, London.

WANTED, a SITUATION, as WORKING FOREMAN to a CARPENTER and BUILDER, a steady Man, aged 38. Writes a fair hand, is quick at figures, can prepare estimates, and would make himself generally useful in the Office, if required. Good recommendation from present and last employers.—Address, B. A. 2, Lime-terrace, Eleanor-road, London-fields, Hackney. Town or country.

TO BUILDERS AND CONTRACTORS.

WANTED, by a Middle-aged Man, a SITUATION as GENERAL FOREMAN of WORKS, in town or country. Eight years' character.—Address, A. B. C. Mr. Kennedy's, Post-office, Blackheath-hill, S.E.

TO PLUMBERS AND BUILDERS.

WANTED, by a Young Man, a CONSTANT SITUATION as PLUMBER. Has a good knowledge of gas-fitting. No objection to fill up his time with glazing if required. Address, J. T. 3, Rochester-place, South Lambeth, New-road.

WANTED, by a Young Man, a CONSTANCY, as PAPERHANGER, PAINTER, GLAZIER, and GLASS-CUTTER. Can do jobbing and plumbing work, if required. Wages, 24s. per week. No objection to the country.—Address, T. 34, Parker's-row, Dockhead, Bermondsey.

TO BUILDERS, CONTRACTORS, &c.

WANTED, by a practical JOINER, aged 26, a SITUATION as CLERK. Competent to make working drawings, take out quantities, estimate, &c. Five years' good reference. No objection to the country.—Address, ALPHA, 37, King's-road, Chelsea, S.W.

TO ARCHITECTS AND BUILDERS.

WANTED, by a practical Man, a RE-ENGAGEMENT as CLERK of WORKS, General Foreman, or Superintendent on a Gentleman's estate. Has a good knowledge of construction. Can prepare working and finished drawings, take out quantities, and measure work.—Address X. B. 28, St. Paul's-terrace, Camden Town.

TO PAINTERS, BUILDERS, AND HOUSE AGENTS.

WANTED, by a Young Man, a constant SITUATION, to do Painting, Glazing, Graining, &c. Fully understands his business, and well acquainted with town work.—Address, T. W. 25, Wellesley-street, Euston-square. No objection to country.

WANTED, by an efficient BUILDER'S CLERK, an ENGAGEMENT; has had the management of the books generally, and thoroughly understands the routine of the same. Unexceptionable testimonials can be given, and security, if required.—Address, F. J. L. 41, St. Paul's-street, New North-road, Islington, N.

WANTED, *by a* BUILDER'S FOREMAN, a SITUATION. He is thoroughly experienced in the erection of new buildings. A Joiner by trade. Can produce unexceptionable references.—Address, Q. Z. B. No. 9, Johnson's-place, Ranelagh-road, Pimlico.

TO ARCHITECTS AND BUILDERS.

WANTED, by a DRAUGHTSMAN of ability and experience, a RE-ENGAGEMENT. Is thoroughly competent to prepare both finished and working drawings, quantities, &c.—Address, G. D. F. care of Mr. Davy, 18, Smith-street, Walworth, S.

WANTED, a RE-ENGAGEMENT, as CLERK of WORKS, by a thoroughly practical MAN, who has excellent testimonials and good references from the architect under whom he is at present.—Address L. D. 7, Sutton-street, York-road, Lambeth.

TO ARCHITECTS, ENGINEERS, AND OTHERS.

WANTED, by the Advertiser, a SITUATION as OFFICE ASSISTANT. Is a good draughtsman, can measure and take out quantities. Salary moderate. Good references and testimonials.—Address, W. C. No. 42, Upper John-street, Fitzroy-square.

TO SMITHS AND IRONMONGERS.

WANTED, by a Young Man, a SITUATION as GAS-FITTER and BELL-HANGER, and GENERAL JOBBING HAND.—Address, C. C. Gigg's Hill, Thames Ditton, Surrey.

WANTED, by a trustworthy Young Man, a permanent SITUATION as PAPER-HANGER, PAINTER, GLAZIER, &c. He thoroughly understands his business, and can have good references. Wages not so much an object as constancy of employment.—Address, T. G. No. 5, Melina-place, Cambridge-heath, Hackney.

TO SAW-MILL PROPRIETORS.

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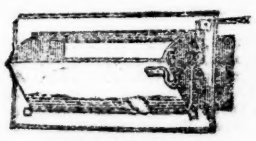

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